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THE INDUSTRIALIST

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☆ ☆

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THE INDUSTRIALIST.

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HISTORIC TREES.

"THE groves were God's first temples," and through their leafy aisles and arching domes the choir invisible has chanted of the infinite to all the generations of men. There are sermons in trees, sermons that teach us lessons of life. Their whispering leaves tell us something of the story of creation. They speak to us by their strength and their beauty, but more than all in their wonderful transformation from the "sear and yellow leaf" to the blossoms and beauty of spring. This always seems a resurrection, let the changing seasons bring it often as they may.

Who can think of the possibilities folded so closely within the little brown acorn and study the story of its growth until it stands a towering and majestic oak without being uplifted? Our faith grows stronger—we feel a deeper reverence for the infinite power and wisdom that controls such perfect and harmonious law, for

> The hand that planned you planned the future too—
> Shall we distrust it knowing such as you?

Trees have not only clothed the earth with beauty but have afforded grateful shade and protection to man. They have furnished his cradle at the beginning of life and his low couch at its close. Indeed, the history of humanity is inseparable from that of trees. Our word book is from the beech tablets on which men used to write. Our word Bible is from the Greek for bark of a tree. Our word paper is from the tree papyrus.

Thus literature was originally written on leaves and wooden tablets. Poetry and art have paid tribute to trees. Shakespeare, Burns, Emerson, Ruskin, Bryant and a host of others have testified of their love and appreciation for them. Dr. Holmes said "I have written many verses but the best poems I have produced are the trees I planted on a hill overlooking the Housatonic." The grandeur and glory of the cedars of Lebanon have been handed down to us since the days of King David and Solomon. They

were of vast size and lofty height, their spreading branches extending more than one hundred feet. This wood was used in building the temple of Solomon and that of Diana at Ephesus. The cypress at Somma, in Lombardy, is held in great reverence because it is supposed to have been planted in the year of the birth of Christ. An ancient chronicle of Milan is said to prove it was a tree in the time of Julius Cæsar B. C. 42 years. This tree was one hundred twenty-three feet in height, and twenty-three feet in circumference one foot above the ground. Napoleon, usually so ready to sacrifice whatever or whoever stood in his way, changed the course of his great road over the Simplon to avoid injuring this tree.

The patriarch Abraham dwelt under an oak, or grove of oaks. The ancient inhabitants of Brittain, in the time of the Druids, looked upon the oak with religious veneration. The oldest tree on earth with an authentic history is said to be the great Bhoo tree of Burmah. For twenty centuries it has been held sacred to Buddha, no one being allowed to touch the trunk. when the leaves fall they are carried away as relics by the pilgrims. The largest tree in the world is at Mascali, near the foot of Mount Etna. The trunk is 204 feet in circumference. The largest tree in the United States, it is said, stands near Bear Creek, on the north fork of the Tule river, in California. It measures 140 feet in circumference. The wonderful redwoods of the Calaveras and Mariposa groves of California are the largest known in the world. There is a very remarkable oak in California near Pasadena. It is of vast height and circumference, with branches spreading so far that five hundred people can stand in its shade at one time.

Trees already grown ancient have been consecrated by the presence of eminent personages or by some important event in history. Foremost among these was the "Charter Oak" honored as the loyal guardian of the charter, spirited away from the tyrannical Andros and placed in its keeping by Captain Wadsworth, in 1687. This historic tree was blown down in a furious gale in 1856. Another ancient and historical tree was the "Old Elm," on Boston Common. In the early maps of Boston it was called the "Monarch." This great tree was a rendezvous for patriots, and Revolutionary celebrations. It was blown down in the great storm of 1876. There are many notable trees in and about Boston, some famous in history. A few of the ancient trees still shadow

the "Common." The old "Liberty Tree," near the Liberty tavern, is noted among our historic trees. It was called "The Great Tree" till 1765, the name Liberty Tree being given it at a patriotic celebration in honor of the expected repeal of the Stamp Act. In 1776, when the Stamp Act was repealed, all the trees in Hanover Square were decorated. Many imposing scenes took place beneath this tree.

The "Old Oak" at the "Wayside Inn," immortalized by Longfellow, would accommodate a party of half a dozen within its hollow trunk. Another tree made famous by Longfellow's magic pen was the "Spreading Chestnut." Lowell was a great lover of trees, and in "Under The Willows" he says,

> I am midway to believe
> A tree among my fair progenators;
> Such sympathy is mine with all the race,
> Such mutual recognition vaguely sweet
> There is between us.

A mammoth oak stood on the border of the Winthrope farm. Near this tree, in the morning twilight of that historic nineteenth of April, 1775, the "Minute Men" who had left their homes at the midnight alarm were marshalled. At Fitch's tavern, near by, they were given refreshment before starting for Concord. On leaving, their brave captain, Johnathan Wilson, said: "This is a cold breakfast, boys, but we will give the British a hot dinner."

Another famous tree, and perhaps none is more celebrated in our own history, is the "Washington Elm" at Cambridge, under whose shade Washington took command of the colonial army, July 3, 1775. This tree, associated with the birth of American independence, has been held in honor for a century and a quarter: held sacred as a living monument to the memory of the brave who fought and won the battle for freedom. While many of the old historic trees live only in our memory and the annals of our country, this tree still remains to us. Among other recent ceremonies in its honor, a beautiful wreath was placed around its trunk, a tribute from the fourteen hundred Cuban teachers—the guests of Harvard College and the Nation. Long may it live!

The old elm at Shackamaxon, where Wm. Penn made his famous treaty with the indians, is a historical landmark. A tablet has been placed on the site of the "Treaty Elm," in Philadelphia. Among trees of lesser note are the wide-spreading oak at Flush-

ing, Long Island, under which George Fox, the founder of the Society of Friends, preached; the magnificent black walnut near Haverstraw, on the Hudson, under which Wayne mustered his forces at midnight, previous to the attack on Stony Point; the huge French Apple-tree where Little Turtle, the Miami chief, gathered his dusky warriors near Fort Wayne, Ind.; the tulip tree on King's Mountain battlefield, where ten tories were executed at once; the Magnolia near Charleston, S. C., under whose branches General Lincoln held a council of war previous to surrounding the city; the famous pear trees, planted, one by Governor Endicott, of Massachusetts, and the other by Governor Stuyvesant, of New York; the stately trees of Harvard College campus, planted by Josiah Quincy. Long after the hands that planted these trees are dust they stand a living monument, more imperishable, more beautiful than storied marble. Whittier has commemorated the Cypress of Ceylon, held sacred by the natives, and the sycamores that were planted by Hugh Tallant and remain his only monument.

> In the outskirts of the village, on the rivers winding shores,
> Stand the occidental plane-tree—stand the ancient sycamores.
>
> One long century has been numbered, and another half way told,
> Since the rustic Irish gleeman broke for them the virgin mould.
>
> All the pastoral lanes so grassy now are traffic's dusty streets;
> From the village, grown a city, fast the rural grace retreats.
>
> But still green, and tall, and stately, on the rivers winding shores,
> Stands the occidental plane-tree—stand Hugh Tallant's sycamore.

Let us plant trees: not as William of Normandy planted the "New Forrest," but to benefit those that come after us; to add beauty to our dwelling-place—to commemorate events. "He who plants a tree plants love."

GERTRUDE A. BARNES.

PASTEURIZATION FOR FARMER AND CREAMERY MAN.

THE serum of cream, by which is meant everything that is left after the fat is separated, is an ideal home for the growth of most species of bacteria.

While this is true of almost all forms of bacterial life, it is especially true of those species whose bye-product is lactic acid. Normal milk contains, in round numbers, five per cent of milk sugar, which is about forty per cent of the total solids. The lactic acid species act on this milk sugar, partly breaking it up and forming lactic acid. These lactic acid-forming bacteria are the ones that

the dairy man and creamery man has to deal with, and the writer wishes to briefly consider them and how we may best control them.

The ordinary lactic acid producing bacteria growing in milk or cream have the necessities of life present. We have already noted that they have food in the form of milk sugar. They are also amply supplied with water, of which milk contains about eighty-seven per cent; but we must remember that these bacteria are plants, and as such, in addition to food and water, they need the proper temperature in order to thrive. The effect of temperature on bacteria in milk is better understood when we state that while one germ left in milk at sixty degrees Fahrenheit will multiply to one hundred sixty in twenty-four hours; if left sixteen degrees higher for the same length of time it would increase to sixty-two thousand bacteria. It is evident then that temperature has a remarkable effect on milk bacteria. They seem to thrive best at seventy-five to ninety-five degrees Fahrenheit. As we lower the temperature their growth is checked until a point is reached where they become dormant or are killed. On the other hand, if we raise the temperature above that noted, we soon reach a point unfavorable to germ life, and if the temperature be still further raised, we reach the thermal death point of the germ. The point at which the germ dies will vary with different species, but ordinarily the vegetative or growing form of any species of bacteria is killed at from one hundred forty to one hundred seventy-five degrees Fahrenheit. When milk or cream is heated to this point and then cooled we say it is Pasteurized. By Pasteurization under pressure, or intermittently for two or three days in succession, milk is rendered absolutely sterile.

The writer has tasted milk six months old that was perfectly sweet and it is quite possible to keep milk that long by using this intermittent plan of Pasteurization. The effect of a thorough Pasteurization of milk or cream is little short of wonderful, and its value is fast being recognized.

Creamery conditions are fast changing. The old factory system, where every creamery manufactured their own butter and found their own market, has given way, largely, to the skimming-station system where one factory manufactures the butter from cream skimmed in from one to two hundred branch creameries called skimming stations. Under the old conditions the farmer

would sometimes be required to haul his milk ten to fifteen miles, but with the skimming-station system he generally has a much shorter distance to haul. This system, in turn, is being supplanted in some sections by the farmer using the hand separator and delivering nothing but the cream to his shipping station or creamery.

Where the whole milk is delivered to the creamery or skimming station, it is of immense value, to both creamery and farmer, to see that the skim-milk is returned to the latter thoroughly Pasteurized. Where not Pasteurized, the skim-milk will keep sweet, ordinarily, only long enough to get back to the farm and give the calves one feed. It soon sours, and by night the calves must be fed either new fresh milk or the old sour skim-milk. Most farmers will feed the new milk, this lessening, to a considerable degree, the profit to themselves and the creamery. If the skim-milk is properly Pasteurized at the creamery, it makes a palatable food for calves and pigs, remaining sweet for from twenty-four to thirty-six hours.

Since the advent of the skimming station and its adoption by some of our large creamery companies, it has spread so that a few of the larger companies receive cream that has been shipped from stations over two hundred miles from the main factory; and the problem necessarily presents itself as to the best method of getting the cream to the factory sweet, in order that it may be properly ripened and a uniformly high grade of butter made. If this cream is Pasteurized at the skimming station by being heated from one hundred sixty to one hundred seventy degrees Fahrenheit in a modern Pasteurizer and then rapidly cooled to a temperature where the growth of the bacteria is checked, it is apparent that our cream can be shipped almost any distance and be delivered at the factory in good condition. This allows of greater centralization of the business, and it can therefore be handled at much less expense and with greater profit to the farmer and creamery. Not only this, but our scientific butter maker has found that many species of bacteria growing in cream will produce bad-flavored butter. If the bacteria in cream are killed by Pasteurization, we can then add a *starter*, composed of a pure culture of a certain species of bacteria that have been found to produce a fine flavor in butter.

These are but a few of the many advancing steps that have

been taken by the American butter maker, and it is pleasing to observe that our Kansas creamery man has taken a large part in the progress noted. As in many lines of thought and work at the present time, the development in butter making is in a transitory stage, and it does not take a very discerning eye to see many improvements coming in the near future. E. W. CURTIS.

SALT FOR FATTENING CATTLE.

THERE always has been and no doubt always will be a great deal of discussion regarding the use of salt for various kinds of stock. Especially at institutes do we hear the pros and cons, at times to an almost tiresome extent. There are ardent advocates of the using of large quantities of salt for stock—putting it in the feed so that they must eat it. The more conservatives seem to favor keeping salt where the stock may have it at will. Others would use no salt at all, claiming it to be the cause of blackleg, dry murrain, and various other troubles.

Salt is undoubtedly a very important factor in the feeding of all kinds of animals, but we find that a certain amount of care must be exercised in using it. The cattle that are bought and brought to the College are always very greedy for salt. If allowed to satisfy their desire, they will consume so much that it greatly deranges the processes of digestion. After the large quantity of salt is taken the cattle will drink a large amount of water, which with the salt has a very cathartic effect; they go off feed and it may take a week or more for them to get in normal condition. After the cattle become accustomed to the salt it can be kept before them all the time with no bad results, but it can easily be seen how one could form the opinion from an occasional salting of the stock that the salt is a detriment.

We find it necessary to take the precaution of allowing cattle only one ounce of salt per day to the one thousand pounds of live weight, and be careful that an individual does not get more than its share. This precaution is necessary only until the animals have become accustomed to the salt. After this, the salt is kept before them all the time. Our salt boxes are placed at a convenient place under the sheds and replenished as often as necessary to keep salt in the box. The salt is weighed out in two-pound sacks and only this amount put in at a time, so the salt is fresh. A larger amount would not be desirable for lots of ten to twenty

head. Common barrel salt is used and is considered preferable to rock salt. The animals must use too much energy and time and often get their tongues sore to satisfy themselves at rock salt.

As to how much salt calves will eat, the following from our notes on the one hundred thirty head of last spring calves now on feed at the barn will speak for itself:

Lots 1, 2, 3 and 4 have in each twenty head of grade Herefords, Short-horns, and Angus, and have been on feed one hundred two days.

Lot.	*Feeds.*	*Salt eaten.*
1.	Shelled corn and alfalfa hay	36 pounds
2.	Kafir-corn and alfalfa hay	42 pounds
3.	Shelled corn ⅔, soy beans ⅓, and prairie hay	50 pounds
4.	Kafir-corn ⅔, soy beans ⅓, and prairie hay	60 pounds

Lots 5, 6 and 7 contain ten head each of grade Herefords, and have been fed just one hundred days. Lot 6, in addition to having salt where they could get it at will, received one ounce per one thousand pounds live weight per day on their feed.

Lot.	*Feeds.*	*Salt eaten.*
5.	Shelled corn and alfalfa hay	24 pounds
6.	Shelled corn and alfalfa hay { Ate at will	14 pounds
	{ Fed in feed	25 pounds
7.	Shelled corn and alfalfa hay and a condimental feed	12 pounds

Lots 8 and 9 contain ten head each of common grades of all breeds. Lot 8 was raised on skim-milk and have been fed one hundred two days. Lot 9 was raised on whole milk and has been fed only eighty-eight days. The skim-milk calves seem to have a great capacity for salt, but it has shown no bad effects. The lots are being fed the same—shelled corn and alfalfa hay. Lot 8 has eaten thirty-four pounds of salt and lot 9 only sixteen pounds.

An average would show that the amount of salt consumed is near the standard of one ounce to the thousand pounds live weight for twenty-four hours. The calves are doing nicely, and there is much more interesting data that will be given later.

J. G. HANEY.

The usual vacation on February 22, Washington's Birthday, was this year extended to include both Friday and Saturday. In order to make up for Saturday the time-table of the week was pushed a day forward, substituting Monday for Saturday. The students were very much pleased by this arrangement and many went home to celebrate with their parents and friends.

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Manhattan, Kansas.

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PRES. E. R. NICHOLS.....Editor-in-Chief
PROF. J. D. WALTERS.....Local Editor
PROF. J. T. WILLARD.....Alumni Editor

LOCAL NOTES.

Winter term closes March 22.

The Chicago *Dairy Produce* publishes a well-made half-tone of Prof. D. H. Otis.

The next meeting of the Manhattan Horticultural Society will be held March 21.

The Mechanical Department has received an order from Dillion, Kan., for thirty eccentrics.

State Superintendent Frank Nelson will address the educators of Riley county, at Garrison, April 14.

Mr. and Mrs. D. H. Otis entertained the short course dairy boys at their home on the evening of February 22.

Mrs. L. G. Graves, teacher in the Woman's Training School, St. Louis, Mo., visited College last Thursday. Mrs. Graves was a schoolmate of Miss Howell at Pratt Institute.

The Manhattan *Nationalist* has changed hands. Editor Perkins has sold the paper to Messrs. L. N. Flint and A. W. McGarrah, of Olathe, Kan. Mr. Perkins will soon leave for California.

Two seedy looking Mormon missionaries made a house to house call on College Hill last Friday. They distributed some of their literature, but did it modestly and quietly, avoiding all questions and arguments.

Prof. A. B. Brown was a happy man last week. His youngest son, Al, returned from the Philippines where he had been a member of a military band for the last two years, and his second son, Ben, came back for a few weeks visit, having obtained a leave of absence from his duties as a musician of an opera troupe.

The Logan Creamery and Manufacturing Company writes: "Have you a good young man that is thorough in handling steam power and the De Laval Separator? The amount of milk handled is about four thousand pounds per month. The operator must deliver cream to main plant, twelve miles." Such letters come to the College almost daily and the wages offered are far above those of the average school teacher.

The *Sunflower Bulletin*, published at Parsons, Kan., contains an interesting article on "Our Boys at Manhattan," about their work in testing milks and calculating profits of dairy herds. The article was written by student Roscoe White.

The entertainment given in chapel Monday evening for the benefit of the baseball club was well attended and successful in every way—resulting in a snug purse for the champions of the diamond. About seventy-five dollars were taken in at the door. The program consisted of music, declamations and drills. Professor and Mrs. Metcalf rendered some fine readings.

Hon. J. M. Hubbard, now a citizen of Connecticut, was a Manhattan visitor this week and on Tuesday morning addressed the College students in chapel. In the early days Mr. Hubbard lived at Wabaunsee, and in 1861 represented Wabaunsee county in the legislature—the first State legislature which assembled in Kansas. Since returning to Connecticut he has served as a regent of the agricultural college of that state. In his address he made the statement that as a legislator of Kansas he had assisted in organizing the College and locating it at Manhattan, but that he never expected it to become an institution of such magnitude and influence—the largest and best agricultural college in the world.

Miss Gertrude Williams, the recently appointed Director of Physical Training, is a native of Milwaukee, Wis. She is a graduate of the grammar department of the Wisconsin State Normal school. After graduating she attended the Milwaukee high school for three years and took a course in a business college. She then entered the Burnham Gymnasium of Physical Training for teachers, in Milwaukee, where she completed the two-years course in 1900. During the summers of '99 and '00 she assisted in the Milwaukee vacation school and through the winter of '99 conducted classes in Episcopal mission schools. At the time she accepted her present position she was teaching the young women of the Milwaukee high school. Miss Williams comes to us well recommended and she will undoubtedly make a success of the work of physical training at this College.

Thursday morning the Farm Department received Axtell of Osborne 38360, a fine eighteen-months old Aberdeen-Angus bull, from W. O. Park, Atchison, Kan. Mr. Park donates this bull to the College. Axtell of Osborne is sired by Axtell of Estill, the highest priced Angus bull sold in 1898, and for which Mr. Park refused $1000, and his dam, Queen Laura, is the highest priced cow in Mr. Park's herd. A half brother of Axtell of Osborne was fifth in his class among one-hundred-fifty yearlings at the international show at Chicago last fall. The calf was bid in at the sale at Osborne farm in Jackson county, Wednesday, by Assistant Haney, of the College, for $220, a farmer near Mr. Park's ranch being the opposing bidder and determined to get him on account of his superior quality. The officers of the College and the students in farm classes heartily thank Mr. Park for this valuable gift.

Last week the Farm Department received an application from the general manager of the Chihuahua & Pacific Railroad, Mexico, for a competent man to go to the tablelands along the base of the Sierre Madre Mountains and develop profitable methods of crop raising. The altitude is seven thousand feet and the climate absolutely dry, excepting the rainy season, June 20 to October 1, when it rains every day. The department was able to recommend two competent men, either of whom are willing to go if sufficient salary is offered.

Secretary F. D. Coburn, of the State Board of Agriculture, writes to prof. H. M. Cottrell that he received one hundred ninety-two applications for the biennial report by students of the Agricultural College; that he referred these letters to Prof. E. B. Cowgill, editor of the *Kansas Farmer*, Prof. L. R. Cartwright, of Washburn College, and Mr. W. B. Roby, formerly of the *Daily Capital*, and that these gentlemen have decided that under the requirements published in the INDUSTRIALIST some time ago the letter by Mr. W. M. Powell is first best and that of Mr. S. V. Smith second best. The especially bound books will be sent directly to Messrs. Powell and Smith as soon as the binder can make them ready. Secretary Coburn adds: "In your name I have now shipped by Rock Island freight, prepaid, four boxes of the biennial report, each volume bearing the name of a student from whom I have a letter—one volume to each applicant. It affords me no small pleasure to be in position to contribute this literature to the young men who through the medium of our Agricultural College are striving to prepare themselves for larger usefulness and better citizenship. If it proves in any way promotive of their welfare and helps to a deserved appreciation of Kansas and the immeasurable opportunities she holds out to all her children, the State Board of Agriculture will be justified and consider itself richly compensated."

ALUMNI AND FORMER STUDENTS.

R. S. Kellogg, '96, is now in the service of the Division of Forestry at Washington, D. C.

Jennie June Needham, '99, W. E. Hardy, '98, O. S. True, '99, and Fritz Rummel, second-year student 1894, visited us one day recently.

Geo. F. Thompson, third-year student 1882, and Superintendent of printing in this institution 1881 to 1887, is the author and compiler of Bulletin No. 27, of the Bureau of Animal Industry of the Department of Agriculture. This bulletin treats in an extended way of the Angora goat, its history and uses, and the manner of rearing and management. It is beautifully illustrated by numerous half-tone engravings from photographs.

Allie Brown, son of Professor and Mrs. A. B. Brown, [student in 1898] returned home Tuesday from the Philippine Islands where he has been serving with the Thirty-second U. S. Infantry. On account of sickness, Allie had been in the hospital for some time prior to leaving the islands on December 30. He reached San Francisco last Friday and was immediately discharged. He joined the regiment on July 27, 1899, and was assigned to the band.—*Nationalist.*

The Division of Vegetable Physiology and Pathology, of the Department of Agriculture, has just issued Bulletin No. 24, by Mark A. Carleton, '87, on "The Basis for the Improvement of American Wheats." This valuable pamphlet of eighty-seven pages treats of the types of wheat found in the several districts of the United States, the desirable qualities of the different botanic groups of wheat, the improvements that have been made in this cereal, and the means indicated for further advancement. It includes a comparative resume of the principal qualities of two hundred forty-five representative wheats of the world. Mr. Carleton is the cerealist of the department.

The Manhattan *Homestead* gives three very interesting letters from B. R. Elliott, '87, who is mining in the Klondike. The descriptions of the method of mining and the general features of life there are not very alluring to tenderfeet. Fresh beef is spoken of as being quite reasonable in price at forty cents per pound. Mr. Elliott, with his partner, is tunnelling into a hill during the winter, and hopes to wash out enough gold in the spring to make more than expenses, which are very high. He regards the climate as one of the most healthful in the world. "People wear the same clothing continuously for six months, and never bathe, and still exist as shining monuments of the healthful and purifying qualities of an arctic winter climate."

Mr. R. J. Barnett ['95] has resigned the position of principal of the city schools of this city to accept a similar position in the Olathe schools, made vacant by the resignation of Mr. L. N. Flint, who has recently purchased an interest in the Manhattan *Nationalist.* Mr. Barnett has been connected with the schools here for the past two years and is considered one of the most promising young educators in the State. He graduated from the State Agricultural College in 1895, and later from the State Normal School, at Emporia. Olathe is fortunate to secure so able a man. A special meeting of the board of education was held this morning to act upon Mr. Barnett's resignation and to elect his successor. Mr. H. L. Snodgrass, of the Lyons schools, was elected to the place. Mr. Snodgrass is the son of Mrs. Sarah E. Snodgrass of this city and formerly a student at the College [fourth-year in 1899].—*Nationalist.*

AGRICULTURAL COLLEGE FINE STOCK.

Assistant J. G. Haney was in Kansas City recently, at the Hereford sales, and to the *Drovers' Telegram* had the following to say about pure-bred stock at the State Agricultural College farm:

"This is a step the College officials have desired to take for a long time. We have seen the agricultural colleges of other states engaged successfully in this all-important branch of stock raising, but were compelled to sit idly by, owing to the lack of an appropriation of the legislature to enable us to buy the animals. The matter ran along from time to time with nothing accomplished Finally, at the meeting of the Improved Stock Breeders' Association of the State of Kansas, held in Topeka, in January last, the subject was brought before the association, and it was urged that the members assist in securing an appropriation from the State to purchase representative stock from the leading breeds. This was not brought before the meeting, however, until just before the close, so nothing of importance in the way of resolutions could be drawn up. Three generous-minded and public-spirited men took the bull by the horns, however, and between them agreed to donate an animal apiece to the College, letting us select our choice from their entire herd. They were all Hereford men: J. M. Foster of Topeka, Kan.; West & Sons, Silver Lake, Kan.; and Steele Bros., Belvoir, Kan. The first two presented the College with, respectively, the bull Excello and the cow Agustha, and I selected the heifer sold to-day, Perfection Maid, from the herd of Steele Bros., a week or so ago. They had already entered her for the sale, so it devolved upon me to come here to-day and bid upon her.

"The stiff figure to which the bids were carried showed that the heifer is undoubtedly a choice one, and that the College is an immense gainer by the generosity of the donors. This action on the part of the Hereford men has already borne fruit, as Jno. Warner, of Manhattan, Kan., has presented the College with a Shorthorn. The only other pure-bred animal on the place was a Guernsey bull, which we paid $90 for several years ago. We have about sixty scrub cattle at the College which we keep for milk tests, etc., but they are ordinary and cost but $30 per head.

"Our aim is to get a trio of all the principal breeds, not only of cattle, but of horses, swine and sheep as well. We will study the different characteristics of each breed, its adaptability and beef-making qualities, and some very valuable and interesting reports would be given. The students will be given practical lessons in stock judging, and when they go forth into the agricultural world will be versed in cattle lore. Some of our hardest working students, especially those unfamiliar with farm life, do not know the essential differences between Holsteins and Herefords or Shorthorns. The great practical advantage resulting from the raising of blooded stock by agricultural colleges is well illustrated by the Iowa State Agricultural College, of Ames, which has now about $30,000 worth of pure-bred stock of twenty-five breeds, including horses, swine, sheep, etc. The state makes liberal appropriations for this department, hence its high state of excellence.

"Although we have our start in cattle, sheepmen are not

behind in looking after their favorite stock. Mr. Westbrook, of Marion county, the home of Joe Patchen, who is a well-known sheep and horse breeder, has offered us three pure-bred sheep, if a duplication of his gift is forthcoming. We are not going to rely on donations, however, but intend to urge the matter of an appropriation by the State, and want all well wishers of the College and lovers of pure-bred animals to assist us."—*Drovers' Telegram.*

DISCING ALFALFA.

(Press Bulle in No. 82, issued by Farm Department.)

Our first experience in discing alfalfa was in 1898. A field had been seeded to alfalfa in the dry year of 1894 and a poor stand secured. In 1897 this alfalfa was heavily pastured by hogs. The hogs were taken off early in the fall and a heavy growth of crab grass came up. The crab grass was so thick and the stand of alfalfa so thin that it was not worth keeping.

Late in March, 1898, this field was harrowed with a disc harrow, the discs sharp and set at as great an angle as possible. It was immediately cross disced with the discs set the same way. The ground was thoroughly pulverized and the alfalfa apparently destroyed. It soon started, branched out thickly, and we made three good cuttings from that field that summer.

In 1900 we went a step further in discing alfalfa. The season was very dry at Manhattan, the rainfall in June being 1.19 inches, in July 4.51 inches, and in August 2.84 inches. Two fields of alfalfa, two years old, were disced.

One field was disced March 28, the first cutting for hay made May 31, disced June 6, the second cutting for hay made June 25, disced June 27, the third cutting of alfalfa made August 13, and the alfalfa disced for the fourth time August 20. The last cutting of alfalfa was made September 13. This shows four discings and four cuttings of alfalfa on upland in a dry year.

Another field of alfalfa was disced and cross disced March 27. The first cutting of alfalfa was made June 4 and the second discing June 6. Through July and the early part of August, the alfalfa was cut from day to day and fed green to dairy cows to help out dried up pastures. August 20, the field was disced, and October 3, the last cutting of alfalfa made. The alfalfa in both fields made fine late fall growth and went into winter in good condition.

The stand of alfalfa on both fields disced in 1900 was good. A harrow with sharp 16-inch discs was used, the discs being set at a slight angle, just sufficient to turn the soil over, and the harrow was weighted to make the discs split the alfalfa crowns to a depth of two inches. The discing split the alfalfa roots and this made them throw out many new shoots. The discing made an earth mulch over the field and prevented the evaporation of water so rapid in a dry time from an alfalfa field just after being cut. The discs were set so that they barely turned the soil over and, running at a depth of two inches, they turned the roots of the crab grass and weeds up to the sun which killed them. These disced fields were clean and free from crab grass in the fall.

We have not disced one year old alfalfa. From these experiments, we feel safe in recommending discing all alfalfa of two years or more standing. Make the first discing early in the spring and then disc immediately after each cutting. If the stand of alfalfa is fair to good, set the discs as we did in the experiments made in 1900. If the stand is poor and the growth of crab grass thick, set the discs to cut deeply. Discing is of as much value to alfalfa as cultivation is to corn.

H. M. COTTRELL.

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Local Editor, - - *Prof. J. D. Walters*
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THE INDUSTRIALIST.

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"THE ART OF ARTS PRESERVATIVE."

NOT long since several students were discussing the invention of wireless telegraphy, declaring it one of the most wonderful inventions of man, when the writer put the question: Of all inventions, what one has most benefited mankind? Opinions varied. Some thought steam, others suggested electricity. When asked what was thought of printing the general reply was, that printing was invented so long ago and had become so common that it was overlooked.

And what invention has benefited mankind to such an extent that it can be considered along with printing? Think a moment, if you will, what would be the result if all printing—books and newspapers—should be laid away out of sight of the human race for one short month. What would become of the world without printing?

Few people stop to consider the importance of printing. Last spring term the writer, while making arrangements to take his classes in printing to Topeka to show them some of the larger offices of our capital city, thought some might like to meet some of our prominent politicians, and wrote one of the most prominent in the State that we would like to meet him on a certain day. The answer was: "Nothing would give me more pleasure than to meet your classes in printing, the art of arts preserative, the art that has done more to civilize and Christianize the world than all else combined."

Printing, of all the trades, is a most instructive occupation. A person cannot work at the trade without being continually learning something. Few people appreciate what it means to be a printer. The general impression is, that any person may learn in a short time how to set type and thereby be classed as a printer. The setting of type is the least of the printer's troubles. The average writer (for publication) would be ashamed to see his manuscript in type as he writes it. Few persons punctuate cor-

rectly; the grammatical construction is crude; they do not follow any one dictionary; misspelled words are plentiful; there is no system or uniformity of capitalization or abbreviation. The printer must be able to take any and all kinds of manuscript, read it readily and correctly, spell, punctuate, capitalize—in fact, must find out what the author intends to say and then put it in such shape that the average person may read and understand it at a glance. He must be able to supply words where the copy is illegible. This takes years of practice and hard study.

To prove this assertion the writer would respectfully refer to the fact that books are easily understood and their meaning rarely questioned because the printer "gets in his work" on composition. On the other hand, let us refer you to the statutes of our State. The legislature is made up of merchants, farmers, bankers, lawers and blacksmiths (rarely printers) who, as soon as elected, have some hobby in the way of a new law and they intend to revolutionize our statute books and astonish the natives. They frame their bill in their own sweet way, and at first opportunity present it. This is referred to the proper committee, and if the committee happen to read it as the framer intended it—drop in the commas, etc., in the right place—they recommend it for passage. The clerk reads it to an inattentive body; or, as has often been the case, a dozen clerks are reading as many bills at one time while the members are getting dinner, so they can vote intelligently. The bill passes and becomes a law. During its progress no person is allowed to drop in an occasional comma or dash to be sure the thing will be understood in the future as the legislative body or the framer understands it. When this same bill goes on the printer's case to be put into our statute book the foreman of the composing room sternly says to his ever-alert men, "follow copy." They follow copy. We think we have a good law upon our statute book; and it proves to be until some unsuspecting person reads to suit himself. A law suit follows. The attorney on one side reads the law. It is plain. The opposing counsel takes the same book and reads the same paragraph giving it an entirely different construction—just because the printer is not allowed to punctuate it and make it plain. Then the judge renders a verdict and passes judgment, "construing the law as the framer evidently meant it." Such difficulties are never encountered where the printer is allowed to "edit" his copy.

Printing has indeed become a fine art. Since the advent of half-tones little is heard of steel engravings, the printer equalling that class of work at a greatly reduced price. Color printers and cartoonists are leading the artists a merry chase. Papers are being printed "by the mile," eight, twelve, sixteen, twenty-four and thirty-two pages at a time, in colors if wanted, and folded ready for the mail, faster than a person can count.

Yea, verily, printing is one of the most wonderful, as well as the most beneficial and useful inventions the world has ever known, for what *could* we do without it?

Comparativly few people realize the magnitude of the printing industry. They seek no further for information than their small home printing-offices. Even these are wonderful. But go into the larger cities—go even to Topeka and look through the Hall Lithographing Co.'s plant, the Geo. W. Crane establishment, the *Capital* and *Journal* with their swift type-setting machines and perfecting presses with folding machines attached. And good printers are always in demand at good salaries. But the trade cannot be learned in a year or two. The fact is, a person never gets through learning. The trade is improving so rapidly that the up-to-date printer must be ever alert or he will become fossilized—a back number.

J. D. RICKMAN.

PURE-BRED STOCK.

The following editorial from the *Kansas Farmer* expresses the conditions at the College in regard to pure-bred stock so well that we feel like publishing it in full:

"A month ago the Agricultural College had one Guernsey bull that was bought by the College. Since then, through the generosity of public-spirited breeders, the College has received the following: From J. M. Foster & Co., Topeka, a Hereford bull, 9 months old; from Geo. W. West & Son, Silver Lake, and from Steele Bros., Belvoir, each a Hereford heifer, 10 and 21 months, respectively; from John Warner, Manhattan, and Groom Bros., Panhandle, Texas, each a Shorthorn heifer; from W. O. Park, Atchison, a 19 months old Angus bull; from H. Smith, Colwich, a Poland-China sow. There are rumors of other donations of hogs that will no doubt be forthcoming. C. E. Westbrook, of Butler county, has a member of his breed of sheep for the College as soon as some other sheep man feels the same spirit of enterprise.

"It is the idea of the College people to maintain typical specimens of the pure breeds, and a trio of each is all that is thought necessary for a beginning. The *Breeders' Gazette*, in an editorial, 'Equip the Agricultural Colleges,' makes the following comment:

'The states that have been conspicuous for their liberal handedness in this direction are Iowa, Wisconsin, and Minnesota. Without reference to the facts and figures—except to say that the Iowa school has had at least $50,000 at its disposal for the purchase of pedigreed stock and other stock for experimental and educational purposes—it is enough to recall that the work with live stock has done more to bring the agricultural colleges of these states to the attention of the world than all the other lines of work projected. The overflowing short courses in these institutions and the phenomenal increase in the growth of the attendance in the long courses, speak eloquently of the influence of the work with live stock made possible through the liberality of the states named with their agricultural colleges.' Further on the writer says: 'It is significant of the awakening on this subject that Kansas is also making a similar appeal. The sunflower state owes its wonderful progress to the help of the stock industry. The College at Manhattan has for years been a force in the educational field of that State and a potent influence for the advancement of agriculture in the West and certainly deserves all that can in reason be asked in the way of equipment for further work.'

"Briefly stated, the College needs and must have in order to carry on the work it is intended to do, representatives of the four leading beef breeds of cattle. These are Hereford, Shorthorn. Angus and Galloway. In three of these a start has been secured, Beef production can not be properly taught without the means of illustration. The College gets numerous questions as to the general purpose breeds. It is essential that they be represented and tried at the College. These are Red Polled, Polled Durham, and Brown Swiss. The dairy breeds must also be represented. The western part of the State wants a cow that can travel and graze over a large area for her food. The Ayrshires are particularly adapted to this mode of living in their native land, and are excellent milkers, but it is not known that there is a single animal of this breed in the State. The Guernsey, Holstein, and Jersey also need to be tried and their adaptability determined.

"There are eight breeds of swine concerning which the College

is asked. Representatives of these should be provided. Twelve breeds of sheep, to say nothing of goats, demand attention. Chickens, turkeys, geese, and ducks must also be represented. Breeds of draft, carriage, and saddle horses demand representation. There is no place in our State where a young man may go and learn how to judge a horse, to feed and care for it while well, or to attend to it when ailing. The more breeds there are represented the broader minded the student will become. He will see that no breed possesses all the desirable points, but he will learn what is desirable, to what condition it is best adapted, and so be able to select what is best under his conditions.

"It will be readily seen that the present appropriation, which has cost the farmers of the State who own over $3,000 worth of property, something like 2½ cents each, would hardly pay the freight and other necessary expenses. If any start is to be made in the line of pure-bred stock before the next legislature meets, it must rest with the breeders to wholly or partially donate. Certainly all the public spirit and generosity in this line is not possessed by the seven or eight breeders who have responded."

POOR-FARMS AS EXPERIMENT STATIONS.

THE *Wallace Farmer*, of Des Moines, Iowa, discusses an article on the above subject, published in a recent number of the INDUSTRIALIST, as follows:

"Prof. H. M. Cottrell, of the Kansas Experiment Station, makes a suggestion that is well worth the consideration of our readers. The agriculture of Kansas and Nebraska is quite peculiar. There are three well-defined agricultural regions in those states, shading one into the other. From the Missouri river and reaching back from fifty to one hundred miles there is a belt of country which agriculturally belongs to Iowa and Missouri. In other words, the same grains and grasses in about like luxuriance and under the same methods of cultivation prevailing in western Iowa will succeed admirably. This gradually shades off into a central belt of both states where it is very difficult to secure a stand of tame grasses and where Kafir-corn gradually takes the place of corn, and the saccharine sorghums furnish forage except in belts where alfalfa conditions prevail and where, of course, it is preferred forage. About the longitude of Great Bend in both states this quite

sharply breaks off into the 'short-grass' country, where wheat and oats can be grown in great abundance in years of excessive rainfall and where they can not be grown at all in dry years. This last was intended for a natural grazing country, the wild grasses being better adapted to it than anything that has ever yet been discovered, and it should never have been broken up.

"The Experiment Station of Kansas is located at Manhattan, one hundred eighteen miles west of Kansas City, and very naturally the farmers in the middle section, of which Manhattan is about the eastern boundary, and in the western section are very skeptical as to the value of experiments in cultivation undertaken at Manhattan. They say, and very truly, that what succeeds in Manhattan may not succeed west of it. This, however, applies only to experiments in cultivation. Whatever combination of feeds will make a steer gain, or a cow give milk, or a hog fatten at the Station, will produce the same effects anywhere in the State, the only trouble being to get the combinations.

"To obviate this difficulty, Professor Cottrell suggests that the poor-farms of the different counties may be turned into experiment stations, controlled by the supervisors; that the county experiment with new seeds and implements on recommendation of the Station, and that the Station keep a directing eye on these experiments. The suggestion is a good one, and the only difficulty we can see will be that of getting county supervisors who are good enough farmers to take an active interest in this work.

"The changes that must be made in farming in the middle section are two-fold: one of implements and the other of plants. The soil in that section requires a different treatment from the soil in the eastern, and a still more widely different treatment from the soils in central Iowa and Illinois. Not only in the semi-arid sections of Kansas and Nebraska, but in arid sections all the world over, when the soil becomes dry it rises in clouds of dust; plants perish not only because of the lack of rainfall during the growing season, but because under eastern methods of cultivation they will not be able to avail themselves of the moisture of the subsoil.

"We discovered this in 1898, when giving special attention to the preparation of the soil for winter wheat. While we urged our readers in all sections to plow early, harrow frequently, and get the seed bed solid by this method, our central Nebraska readers who tried it found that their soil kept getting looser and looser

under our methods. What these soils need is to be compacted, either with or without plowing, as closely as possible. The methods which lead to the compaction in climates having abundant rainfall have the very opposite effect in climates of scant rainfall.

"We hope the suggestion of Professor Cottrell will be heeded and that at least in a few counties in both these states the board of supervisors who have charge of poor-farms will convert them into experiment stations under the direction of the state experiment stations at Manhattan and Lincoln. It would not be a bad thing, though less necessary, if boards of supervisors in all states would make their poor-farms experiment stations where the farmers could see for themselves what methods and crops succeed and what fail."

SENATE BILL NO. 90.

AN ACT to authorize and provide for the organization of cadet corps in the educational institutions of the State and to authorize the governor to commission the necessary officers thereof.

Be it enacted by the Legislature of the State of Kansas:

SECTION 1. That whenever an educational institution of the State of Kansas shall authorize and organize a military department, and shall muster a corps of cadets, uniformed and equipped and numbering at least forty enlisted men, the governor of the State may, upon the recommendation of the authorized head of the school, issue commissions to the officers of such corps of cadets specified in said recommendation.

SEC. 2. That when a corps of cadets shall exceed in number eighty enlisted men there may be commissioned two captains, four first lieutenants (one of whom may act as battalion adjutant and one as battalion quartermaster), and two second lieutenants, and for each additional forty enlisted men there may be in addition one captain, one first lieutenant and one second lieutenant. When a corps of cadets shall exceed in number forty enlisted men, but not be entitled to battalion organization as above, there may be commissioned one captain, one first lieutenant and two second lieutenants (one of whom may act as adjutant).

SEC. 3. When there shall not be an officer of the army of the United State or of the national guard of the State detailed to act as military instructor at an educational institution, there may be

commissioned one commandant of cadets with the rank of a major, who will be in command of and act as instructor to the cadet corps. An officer of the national guard of the State may be so commissioned and at the same time retain his original rank in the militia.

SEC. 4. Recommendations for commissions will be made by the authorized head of the institution to the adjutant general. Commissions shall be for the term of two years unless terminated by removal for cause, resignation, or ceasing to be an attendant at the school. Commissions will be upon a specific blank prepared for this purpose and will be signed by the governor, the secretary of State, and attested by the adjutant general. All commissioned officers will be required to subscribe to the regular oath of office.

SEC. 5. The term of an enlistment shall be for two years, unless terminated by discharge or removal from the institution as a student. Each cadet shall be required to take the following oath of enlistment: I do solemnly swear (or affirm) that I will bear true faith and allegiance to the United States of America, and the State of Kansas, and that I will serve them faithfully and honestly against all their enemies whomsoever; and that I will obey the orders of the governor and of the officers appointed over me.

SEC. 6. Nothing in this act shall be construed as giving any corps of cadets or any person commissioned under this act a claim upon the State for pay, equipment or ammunition; nor shall any such organization be considered as a part of the organized militia of the State; nor will the commissioners as provided for entittle the holder to any rank or precedence over an officer of the United States army or an officer of the Kansas national guard; nor shall any expense be created against the State. *Provided*, That the necessary blank commissions be provided by the State.

SEC. 7. This act shall take effect and be in force from and after its publication in the official State paper.

W. A. McCullough, class of '98, now junior of the University Medical College of Missouri, won the position of assistant in the dispensary, on account of high standing in class, over several candidates in the senior class, from which class, heretofore, the assistants have been chosen. "The Jumbo Class" of '98, from which sixty-nine students graduated, has already begun to make a good record in several directions.—*Nationalist.*

THE INDUSTRIALIST.

Published weekly during the College year by the Printing Department of the

KANSAS STATE AGRICULTURAL COLLEGE.

Manhattan, Kansas.

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PRES. E. R. NICHOLS.....Editor-in-Chief
PROF. J. D. WALTERS.....Local Editor
PROF. J. T. WILLARD.....Alumni Editor

LOCAL NOTES.

Regent Hunter was at College last Friday on official business.

Professor and Mrs. Metcalf gave a recital at Westmoreland Saturday evening.

The Mechanical Department is putting a new fire-brick lining in the cupola of the foundry.

Within the last week the College Dairy has received requests for six skimming-station operators.

W. T. Merilatt left last Monday to take up a position with the Parker Creamery Company, of Hutchinson, Kan.

Professor Eyer will be a widower this month. His family has gone to Hiawatha for a prolonged visit with relatives and friends.

Mr. A. J. Westfall, of Sioux City, Iowa, writes for an active dairy student to take up work as field agent, instructing the farmers in running the hand separators.

C. C. Winsler has been absent from College testing milk at skimming stations at Alta Vista, Paxico, Rossville, and Stockdale. The College receives cream from these points.

Superintendent Swingle has discontinued the publication of the *Riley County Educator*, stating that it took too much of his salary to pay expenses. It has been published for eight years.

T. W. Jensen writes from Moville, Iowa, where he has recently gone as agent of the De Laval Separator Company, that he has been selling one separator each day and is well pleased with his work.

Professor Walters is drawing plans for the rebuilding of the old laboratory into a modern gymnasium for the young women. The building will contain a large drill hall fifty eight by forty-seven feet, and about twenty-five feet high. There will also be a lecture room, several offices, a dressing-room and a number of bath-rooms.

Messrs. John N. Morris and George McKee, representing The Sharples Company, Chicago, Ill., have been visiting the dairy school, and the College on Wednesday purchased of them one of their No. 6 Tubular hand separators. This machine was loaned for the dairy school term and did such good work that it was thought desirable to test its durability for a term of years.

The Mechanical Department has commenced repairing the old engine of the electric-light plant of the Manhattan light company. Some work has also been done to the pump of the city water works.

Professor Lockwood has secured Dr. C. G. Dunlap, of the State University, to deliver a course of four lectures on modern English fiction on evenings of April 6 and 7, 12 and 13, at the Manhattan Congregational church.

Mr. Arch McKeever, of Valley Falls, is visiting his son, Prof. W. A. McKeever, of this College. Mr. McKeever is a heavy land and stock owner and a pioneer farmer of Kansas, having settled in the vicinity of Valley Falls in 1857.

The work of Assistant Haney, who left this week for his new field of labor in Mexico, has been arranged for as follows: F. E. Uhl takes three classes and C. A. Scott the one class, and O. H. Elling takes charge of Mr. Haney's work on the farm.

Bulletin 180 of the New York State Experiment Station contains evidence of the good work of former assistant Percy J. Parrott. He has been investigating the life history of the fruit-tree bark beetle and records a number of interesting results. Mr. Parrott is well pleased with his new place.

We are in receipt of Bulletin No. 82 of the U. S. Department of Agriculture, containing the report by Prof. C. C. Georgeson, formerly of this College, on his "Agricultural Investigations in Alaska." The report is an interesting document, even for readers who do not care to go north or to study the conditions of our northern territories. The booklet covers fifty-five printed pages and contains seventeen half-tone plates. It seems that Alaska is destined to become as valuable in certain lines of farming as it has become in mining.

The following from the *Mercury* is not just literally true: "It is told of a College student, who essayed to visit relatives at Topeka one Sunday recently, that he boarded the plug, went to sleep and was carried to Lawrence, returning to Topeka on the noon train. In the evening he boarded the west bound plug, went to sleep and was carried to Salina. When the conductor finally got the boy to Manhattan early Monday morning he carried him out of the car and tied him to the baggage truck, claiming that he was not running a lodging house."

Friday afternoon the Farm Department received the Poland-China sow, College Pet. This pig was donated by Hiram Smith, Colwich, Sedgwick county, and was selected by the stock expert of the *Kansas Farmer*, H. A. Heath. Mr. Smith's herd of Poland-Chinas is one of the best in individual merit and breeding in Kansas, and this sow was selected by Mr. Heath as his choice of the herd. She belongs to the famous World Beater and Tecumseh Lad strains and will make a splendid foundation for the herd of Poland-Chinas which the College now expects to establish.

The dairy boys had quite an interesting discussion, on "The reason for wanting two term's work in the dairy course instead of one," at their club meeting the other Saturday night. The discussion was general and all expressed their opinions freely. More thorough work could be done if important studies, such as feeds and feeding, bacteriology, milk and its products, breeds and breeding, etc., could occupy a full term's work. All students seem to appreciate what they get, but want more of it. Several have expressed a desire to come back next year and take up advanced work if some provision is made for them. This year there are six of last year's dairy students and several of the year before last taking the same work over because there is no advanced work in dairying for them this term.

This week the College lost two of its instructors—Professor Albert S. Hitchcock, who, as has already been announced, goes to Washington, D. C., as Assistant Chief of the Division of Agrostology, where he will receive a considerably larger salary than the College could afford to pay him, and Assistant J. G. Haney, of the Farm Department, who goes to Chihuahua, Mexico, as the agricultural agent of the Chihuahua Pacific Railroad Company, at a salary of $100 a month, expenses of trip to Mexico, and a number of other valuable items. Professor Hitchcock has been connected with the College for nearly ten years, and Assistant Haney is a graduate of the College of '99. Both are energetic workers and enthusiastic students of science whom it will be hard to replace. Both leave with the unanimous well wishes of their collaborators and the students.

The appointments for the four vacant regencies of the Agricultural College made last week by Governor Stanley are highly satisfactory to the College people. Hon. J. S. McDowell, of Smith county, has been a Regent for the past two years and his reappointment is a proper and well-deserved recognition of his valuable services and general worth. Hon. R. J. Brock, of Riley county, is a graduate of the Agricultural College, the second alumnus who has been honored thus. He is the county attorney of Riley county, a rising young lawyer, and a man who as a home Regent will undoubtedly take a warm personal interest in all the business details of the management. Hon. S. J. Stewart, of Allen county is a practical farmer. He is well acquainted with Kansas conditions, having come here in 1856. He was a member of the legislature in 1858, '83, '84, '85, and '86, a captain in the War of the Rebellion, and is now senator of the fourteenth senatorial district. He was a Regent in 1895 and is favorably spoken of by all the old members of the Faculty. Hon. F. D. Coburn, of Wyandotte county, the well-known secretary of the State Board of Agriculture, needs no introduction to the readers of the INDUSTRIALIST. We will simply repeat a few lines from a biographical sketch by the local editor, published in March, 1899, to show what his past relations with the College have been: "Mr. Coburn deserves a place among the prominent 'Makers of the Kansas State Agricultural College' for many reasons. He was a Regent of the institu-

tion from 1883 until 1885, during a most critical period of its history, and served as President of the Board and as chairman of the farm committee during the entire period. His faith in practical education as taught here is attested by the fact that three of his children, a son and two daughters, have graduated from this College. His counsel has been sought constantly and freely for nearly two decades by all Boards of all political complexions. Many of the most valuable experiments of the College Experiment Station have been suggested by him, and the practical value of many of them has been doubled by the publicity which his energetic pen has given them." The present Board of Regents is undoubtedly the most experienced and most intelligent the Agricultural College ever had.

We are glad to be able to state to our friends and patrons that the State legislature has done nobly with the Agricultural College this winter. The appropriations made cover the following items:

	For 1901.	*For 1902.*	*For 1903.*
Refitting old chemical building for gymnasium	$5,000 00	.....	.....
Fire protection	600 00	.....	.....
Deficiency June 30, 1899	14,893 40	.....	.....
Physics and chemistry building	.....	$70,000 00	.....
Current expenses	.....	25,000 00	$30,000 00
Addition to library	.....	.....	10,000 00
Books and periodicals	.....	1,500 00	1,500 00
Salary state veterinarian	.....	1,800 00	1,800 00
Farmers' institutes	.....	2,000 00	2,000 00
Repairs	.....	3,000 00	3,000 00
Coal	.....	1,800 00	1,800 00
Water	.....	1,000 00	1,000 00
Rent of President's house	.....	330 00	330 00
Salary loan commissioner	.....	300 00	300 00
Incidental expenses, care of funds	.....	150 00	150 00
Farm department	.....	7,000 00	2,000 00
Mechanical department	.....	1,000 00	1,000 00
Heat and power department	.....	1,000 00	1,000 00
Equipment other departments	.....	2,000 00	2,000 00
Fort Hays experiment station	.....	3,000 00	3,000 00
Totals	$20,493 40	$120,880 00	$60,880 00
Grand total			$202,253 40

Together with an annual income of about $60,000, provided by the U. S. Government, these appropriations will enable the College to meet its innumerable and constantly growing wants and to open its doors freely to students from all parts of the State. Some needed improvements have to be deferred, but the general financial condition will be more favorable than ever before. The College owes these results to its own good work and growing popularity, to the loyalty of its many friends in the legislature and among the newspaper fraternity, and especially, too, to the effective work of Rep. Frank M. Emmons, of Riley county, and Senator G. W. McKnight, of this district. By their careful study of the conditions and their unflinching devotion to our interests they have earned the gratitude of every true friend of the College.

WEATHER REPORT FOR FEBRUARY, 1901.

Temperature.—The mean temperature was 26.73°, which is 3.08° below normal. There have been 27 warmer and 14 colder Februarys in the past 42 years. The highest temperature was 53° on the 17th, the lowest —13° on the 10th, a monthly range of 66°. The greatest daily range was 45° on the 10th, the least 7° on the 19th; the mean daily range was 22°. The warmest day was the 17th, the mean being 43.5°, the coldest the 12th, the mean being 10.5°. The mean of the daily maxima was 38.38°, of the daily minima 15.08°.

Rainfall.—The total rainfall was 1.20 inches, which is .09 inch above normal. There have been 13 Februarys with more rainfall and 28 with less.

The following table gives comparisons with preceding 42 Februarys:

FEB.	Number of Rains	Rain in Inches	Per cent of Cloudiness	Prevailing Wind	Mean Temperature	Maximum Temperature	Minimum Temperature	Mean Barometer	Maximum Barometer	Minimum Barometer
1858	7	.46			25.49	71	—1			
1859	2	.61	49	N	32.25	63	—5			
1860	4	1.84	33	SW	33.74	64	—6			
1861	0	.00	35	NW	33.70	68	—9			
1862	1	.12	51	NNW	24.54	54	0			
1863	7	2.70	56	N	29.72	53	—4			
1864										
1865	4	2.41			34.68	58	13			
1866										
1867	3	2.01	46	N	31.70	57	—2			
1868	3	.18	32	SW	29.39	69	—6			
1869	5	1.17	58	NW	30.27	65	—4	28.74	29.25	28.30
1870	0	.00	37	SW	33.68	69	—3	28.69	29.10	28.10
1871	6	2.48	49	SW	35.80	71	3			
1872	4	.48	50	NW	32.27	68	—10			
1873	2	.30	47	SW	30.50	66	—4			
1874	5	1.07	59	SW	25.28	48	0	28.78	29.24	28.10
1875	4	.87	51	SW	22.50	63	10	28.78	29.40	28.14
1876	2	.65	39	SW	36.96	69	—4	28.81	29.32	28.26
1877	5	.91	50	SW	39.59	65	16	29.01	29.40	28.40
1878	5	1.44	58	SW	39.09	68	6	28 65	29.13	28.23
1879	2	.75	38	SW	21.50	58	—14	28.84	29.42	28.29
1880	1	.05	32	SW	36.78	67	4	28.57	29.09	28.02
1881	3	2.75	52	SW	22.55	47	—13	28.63	28.98	28.23
1882	2	.42	41	SW	40.37	69	—7	28.65	28.90	28.14
1883	4	1.75	45	NW	25.76	65	—17	28.88	29.40	28.09
1884	3	.58	46	SW	26.01	63	—6	28.76	29.12	27.97
1885	5	.55	43	SW	21.57	60	—18	28.58	28.96	28.06
1886	4	.35	40	SW	31.42	69	—7	28.94	29.48	28.08
1887	6	1.18	58	NE	27.84	72	—9	28.98	29.59	27.90
1888	5	2.67	41		32.12	71	—4	29.05	29.75	28.44
1889	3	.54	30		25.53	64	—10	29.15	29.80	28.47
1890	5	.24	46	NNW	29.97	70	—5	28.95	29.48	28.44
1891	2	.84	25	N	29.20	68	0	28.88	29.41	28.16
1892	5	2.95	44	SW	35.89	64	12	28.91	29.25	28.23
1893	6	.89	31	N	27.85	55	—6	28.95	29.69	28.31
1894	2	1.10	33	SW	26.21	67	—11	28.99	29.58	28.22
1895	7	1.39	50	N	25.86	71	—15	29.01	29.50	28.43
1896	4	.56	30	N	37.05	81	1	28.81	29.26	28.32
1897	5	1.20	58	N	31.52	60	4	28.82	29.55	28.34
1898	2	1.37	21	NW	35.86	66	9	28.98	29.61	28.39
1899	5	.86	29	NW	17.75	65	—32	28.99	29.81	28.32
1900	7	2.92	37	N	25.36	55	—1	28.93	29.43	28.39
1901	2	1.20	44	N	26.73	53	—13	28.98	29.49	28.39
Sums	159	46.81	1714		1251.85			865.69		
Means	3.8	1.11	43	SW	29.81			28.86		

Cloudiness.—The per cent of cloudiness was 41, which is 1 above normal. Eleven days were cloudy, 3 partly cloudy, and 14 clear.

Barometer.—The mean pressure for the month was 28.98 inches, which is .12 inch above the normal. The maximum was 29.49 inches at 7 A. M. on the 5th, the minimum 28.39 inches at 7 A. M. on the 17th, a monthly range of 1.10 inches.

Wind.—The wind was from these directions the following number of times: North 8, northeast 6, east 1, southeast 1, south 2, southwest 7, west 0, and northwest 3. The total run of the wind was 5407 miles, which is 1450 miles below normal. This gives a mean daily velocity of 193.11 miles and a mean hourly velocity of 8.05 miles. The maximum daily velocity was 416 miles on the 3d, the minimum 25 miles on the 12th. The maximum hourly velocity was 26 miles from 10 to 11 P. M. on the 16th.

WIND RECORD.

FEBRUARY.	Total Miles	Mean Daily	Maximum Daily	Minimum Daily	Mean Hourly	Maximum Hourly
1890	5812	207.57	374	74	8.65	28
1891	7675	274.11	581	80	11.42	34
1892	7024	242.20	407	101	10.08	30
1893	7747	276.68	494	99	11.52	33
1894	7884	281.57	768	56	11.73	45
1895	6562	234.35	527	81	9.76	29
1896	7216	248.83	523	88	10.37	37
1897	6529	233.18	453	74	9.71	32
1898	6794	242.64	467	47	10.11	37
1899	6497	232.04	403	76	9.67	31
1900	7140	255.00	459	68	9.11	34
1901	5407	193.11	416	25	8.05	26
Sums	82287	2921.28	.....	.....	120.18	.....
Means	6857	243.44	.....	.....	10.02	.....

ERNEST R. NICHOLS, *Observer.*

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THE INDUSTRIALIST.

VOL. 27. MANHATTAN, KAN., MARCH 12, 1901. NO. 22

PROPOSED NEW CONSTITUTION AND BY-LAWS FOR THE ALUMNI ASSOCIATION.

At the annual meeting of the Alumni Association in 1899 a committee consisting of Mr. Sam Kimble, Miss Stella Kimball and the writer was appointed to submit a revision of the constitution and by-laws to the association the next year. In pursuance of that action the committee prepared a report and presented it at the meeting last June. In view of its length, the radical changes it proposed, and the wisdom of deliberate action in a matter of such possible importance, action was deferred until the next year. In the meantime it was hoped that the entire body of the alumni would give it careful consideration. For those who did not hear the presentation of the report, some words concerning the objects kept in view and the proposed means for their accomplishment will not be out of place.

The old constitution and by-laws was nothing more than a statement of the customs of the association, in respect to reunions, that were in vogue at the time of its adoption. Their formulation into a constitution hampered the association unduly, by thus including non-essential things, which it might be desirable to modify from time to time, in an instrument difficult to change.

The most serious objection to the old constitution was the fact that it provided no means for ascertaining the will of the entire association. No action that the association might take would possess any special weight as an index of the combined judgment of the alumni, since it would be merely the action of such as might happen to be present at a given time, and the action might be revoked within a week, perhaps, by a little diligent electioneering.

The power to choose one or more members of the Board of Regents of the College is an object the desirability of which has been long maintained by the association, but the attainment of which is as remote as ever. However desirable this end may be, it seems evident that it can be desirable only when the selection made actu-

ally represents the entire body. A member unable to attend an annual meeting is quite as likely to have a sound judgment concerning the qualifications of a Regent as one who lives in Riley county. It seemed to the committee that our constitution should provide a means by which a Regent could be chosen that would carry on its face the evidence of its impartiality.

As the association grows in numbers and possible influence, it becomes scarcely less important that its own officers should be chosen by the whole body, rather than by those who happen to be able to attend the annual meeting. The chief features of the revision proposed provide plans by which these elections are to be conducted, and also for the submission of any important question to the vote of the association by mail. At first it may seem that the proposed methods are cumbrous and time-consuming for the officers. It is not believed that in operation they will be found to be either. Similar plans are used by other societies having a scattered membership, without inconvenience or dissatisfaction. If with the growth of the association the burden of the duties of the secretary should become greater than we could expect one to perform *gratis*, a small salary could be paid. With a small membership this will not be necessary; with a large membership the cost to each would be small in case it became proper to remunerate the secretary.

It is the object of the committee to present a plan that will unite the alumni in various ways. There is thus proposed a differentiation in the membership. The execution of the plans for voting by mail will require the expenditure of larger sums of money than in the past, and many of the graduates of the institution will not have as much interest in possessing an active power in directing the work of the association as others, while still desiring to remain in communication with the officers, and to participate in re-unions. The committee has planned that all who desire to participate in the active government of the association shall be required to pay a certain fee and an annual due thereafter to retain such connection. At the same time no one can put any impediment in the way of a graduate who desires to take this active part. The other graduates will participate in reunions as heretofore, but will pay no dues except those incident to such reunions. It is believed that in this way the reunions will not be less successful than in the past, but rather more so, and that this

greater and more serious work of the association looking toward the advancement of the interests of the College will be in control of those only who have a real interest in the object. These it is proposed to call members, and the others associate members.

In respect to the fee to be charged those assuming membership, the committee has not submitted any suggestion. Since it is the aim to get as many as possible to become members rather than remain associate members, the fee should be made as low as is consistent with the collection of a sufficient fund for the transaction of business, and at the same time high enough to discourage any who might be tempted to become members merely for the sake of voting upon some particular question in which they might have a special interest. It can scarcely be less than one dollar.

The committee hopes that the proposed constitution and by-laws will receive the careful consideration of all the alumni of the College, so that if adopted, with such modifications as seem advisable, it will be in full force in time to use in any efforts with the next legislature looking to a recognition of the alumni in the election of Regents. The committee will be very glad to hear on this subject from alumni who may be unable to attend the next annual meeting, and will see that their ideas are brought to the attention of the meeting. The aim of the committee may be summarized in the statement that it has attempted to devise a plan whereby the alumni may become of great value to the institution which gave them a free education, through an organization to which all are eligible, but in which those really in earnest in this will not be hampered by those who are not. While discarding none of the former social objects of the association, it hopes to see the alumni take a strong position on new and higher ground.

J. T. WILLARD.

CONSTITUTION.

ARTICLE I. Name.

SECTION 1. This organization shall be known as THE ALUMNI ASSOCIATION OF THE KANSAS STATE AGRICULTURAL COLLEGE.

ARTICLE II. Object.

SECTION 1. The object of this association shall be the promotion of the interests of the College, and of acquaintance among its graduates.

ARTICLE III. Membership.

SECTION 1. This association shall consist of members, associate members, honorary members and associates.

SEC. 2. Graduates of the Kansas State Agricultural College may become members by paying an entrance fee of $—— to the secretary, and no one shall be recorded as a member until the entrance fee is paid.

SEC. 3. All graduates of the College who have not become members of this association, or who have forfeited membership, shall be deemed to be associate members, and as such shall possess all of the rights and privileges of members, except that they may not make or second motions, vote or hold office, and shall be exempt from all dues except those incident to attendance upon reunions.

SEC. 4. Upon recommendation of the officers of the association, at any annual meeting, former officers of the College may be elected honorary members. They shall be exempt from payment of the entrance fee and other dues and assessments; they may not vote or hold office, make or second motions, but shall possess all the other rights and privileges of members.

SEC. 5. Persons, not themselves graduates of the College, shall be deemed to become associates upon marriage with a graduate, and may attend reunions upon the same terms as associate members.

ARTICLE IV. Officers.

SECTION 1. The officers of this association shall be a president, vice-president, secretary, treasurer, and a board of six directors, and no person shall hold more than one of these offices at the same time.

SEC. 2. Officers shall be elected for terms of three years, beginning the first day of the next July after election, except that after the first election the directors' terms shall begin at once, and two of them shall be elected to hold office until one year from the first day of the next July, two until two years from that date, and two until three years from that date.

SEC. 3. Officers of this association shall be nominated and elected by sealed ballots sent by mail, under arrangements provided for in the by-laws, and if the State ever confers upon the association the power to elect one or more Regents of the College, they shall be elected in the same manner.

SEC. 4. The duties of the officers of this association shall be such as usually devolve upon similar officers of corporations, except as otherwise provided in this constitution or the by-laws.

SEC. 5. The secretary of the association shall be secretary of the board of directors, and shall keep a full record of all their transactions. The treasurer of the association shall be treasurer of the board of directors, and shall pay out money only upon the

official order of the president of said board, and the certification of the secretary that the expenditure has been duly authorized by the board.

SEC. 6. The directors shall be the legal representatives of the association. They shall elect a president and vice-president annually. They shall be in charge of all the business of the association during the intervals between the annual meetings. Whenever it seems wise they may submit any proposition to the members for decision by mail, in such manner that it can be decided by affirmative and negative votes. Whenever petitioned to do so by ten per cent of the members, they shall submit any proposition to the members for decision by mail in like manner. Upon the petition of one-half of the members they shall call a special meeting of the association. They may not make expenditures beyond the amount of the funds on hand, except that in cases of emergencies they may make an assessment of not more than two dollars per capita upon the members.

ARTICLE V. Meetings and Reunions.

SECTION 1. An annual meeting shall be held at the College on each Commencement Day, notice of which shall be sent to all graduates of the institution.

SEC. 2. Special meetings of the association may be called as provided in Article IV, but in no other way.

SEC. 3. A reunion of the association and its invited guests shall be held each year, the date of which is divisible by three. The arrangements for this reunion shall be in charge of the officers of the association.

ARTICLE VI. Amendments.

SECTION 1. This constitution and the by-laws may be amended by a majority vote of all the members voting, the proposed amendments being submitted by mail, and votes returned by the same means. The propositions for amendment shall be presented by the board of directors, through the secretary, upon the petition of ten per cent or more of the members.

ARTICLE VII. Suspension of the By-laws.

SECTION 1. The by-laws may be temporarily suspended at any annual meeting by a two-thirds vote of the members present.

BY LAWS.

ARTICLE I. Dues and Assessments.

SECTION 1. The annual dues shall be one dollar, payable July first, to the Secretary, who shall give a receipt therefor, preserving a stub record of the transaction, and promptly remitting to the treasurer from time to time all money received from this or any other source, and taking his receipt for the same.

SEC. 2. When dues are not paid within three months from the date when due, the secretary shall notify the delinquent, and if not paid within three months from the date of such notice shall transfer his name to the list of associate members.

SEC. 3. Members shall be sent written or printed notices of all assessments made by the board of directors, and the same shall be due immediately, and if not paid within three months the name of the delinquent shall be transferred to the list of associate members.

SEC. 4. Assessments to meet the expenses of the reunions shall be made upon members, associate members and associates in attendance.

ARTICLE II. Reinstatements.

SECTION 1. Persons who have forfeited membership by non-payment of dues or assessments shall be reinstated upon payment of all arrears, or may become members again by paying the entrance fee.

ARTICLE III. Elections and Voting.

SECTION 1. The first election of officers under this constitution and by-laws shall be conducted by the president, vice-president and secretary of the association in office at the time of its adoption, or by others possessing their written proxies, and in the manner and at the time prescribed in these by-laws for regular elections. The secretary shall notify the entire association of the results of the election.

SEC. 2. At the next Commencement of the College after the first election the directors shall meet with the secretary and organize by the election of a president and vice-president. Four members shall constitute a quorum. At this meeting arrangements shall be made for the transaction of future business.

SEC. 3. A majority of all members voting shall be necessary to the election of an officer at any election, or to carry any proposition submitted to the association for vote by mail. At meetings of the association the regular parliamentary practice of deliberative bodies shall govern.

SEC. 4. The secretary, with the two directors whose terms of office expire the next year after that of the secretary, shall constitute a canvassing board for the determination of all elections held by mail, and the results upon all questions submitted to the association for vote by mail. If by reason of remoteness of residence, or for other cause, a director is unable to serve in the capacity of a member of the canvassing board, he shall, in writing, give his proxy for such duty for the time being to another director not on the canvassing board, or if there is no director available he may give it to some other member of the association; but in no case shall one member of the canvassing board hold the proxy of another, or the results of any voting be canvassed, unless three properly authorized members of the board be present. In the event of a vacancy in the office of secretary the president of the association shall perform the duties of that officer for the time

being. Should any other vacancy occur in the canvassing board, it shall be filled temporarily by the director longest in office, and in case more than one have held office for the same maximum length of time the senior in graduation shall take precedence.

SEC. 5. Within the first week of February, each year after the adoption of this constitution and by-laws, it shall be the duty of the secretary to send each member of the association a list of the members, a list of the officers, with dates attached showing the time of expiration of each term, a list of the offices to be filled at the next election, and suitable blanks upon which members may make nominations to those offices. Upon receipt of the nomination blanks, members may execute them and return them to the secretary. Such return must be made before the twenty-fifth day of February, must be in a sealed envelope marked "Nominations for Officers," and must be signed by the member making the nomination.

SEC. 6. Within the first week of March the secretary shall make a complete statement of the results of the nominations to all of the members, and at the same time send them proper blanks for balloting for the election of officers. Upon receipt of this information, members may vote for officers upon the blanks provided. Ballots must be signed, inclosed in sealed envelopes marked "Ballot for Officers," and returned to the secretary before March twenty-fifth. In this election, the candidates shall be those members who were among the five receiving the highest number of nominating votes for the respective offices, but in case two or more are tied for the fifth place, all such shall be eligible. Votes for others shall not be counted in any way, but shall not invalidate the ballot in respect to other officers.

SEC. 7. Within the first week of April the secretary shall make a complete statement of the voting and announce the results. In cases where the election results in no choice, another shall be held in an exactly similar manner, except that only the two highest shall be voted upon, and if there are ties for second place, the senior in graduation shall take precedence. Should there be two that have an equal number of votes higher than those of any others, they shall be the candidates; should there be more than two with such equal number of votes, the two who are seniors in graduation shall be the candidates, and in case of a tie in the succeeding election, the senior in graduation shall be declared elected. Votes in this election shall be sent to the secretary before April twenty-fifth, and the results canvassed the first week in May.

SEC. 8. The complete results of any election shall be announced to all graduates of the College within the first week of the month following that in which the election is completed, and shall be signed by the canvassing board.

SEC. 9. Vacancies occurring in any office may be filled by the directors, and the appointee shall hold the office until his successor is elected. An election to fill out the unexpired term shall be held with the next succeeding annual election.

THE INDUSTRIALIST.

Published weekly during the College year by the Printing Department of the

KANSAS STATE AGRICULTURAL COLLEGE.

Manhattan, Kansas.

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PRES. E. R. NICHOLS.....Editor-in-Chief
PROF. J. D. WALTERS.....Local Editor
PROF. J. T. WILLARD.....Alumni Editor

LOCAL NOTES.

Miss Howell went to Kansas City on Saturday to buy goods for her department.

Prof. W. A. McKeever has an Easter poem in the March number of the *Mind*, published in Boston.

The winter term will close Friday, March 22, and the spring term will open Tuesday, March 26.

The sophomore class in dairying is planning for a special program at the close of the winter term.

Professor Walters lectured before the students of the farmers' short course on "Farming in Central Europe."

F. E. Uhl, '96, who is in the dairy course this winter, takes part of the classes in agriculture left without a teacher by the resignation of Assistant Haney.

The article published by R. W. Clothier in a recent issue of the INDUSTRIALIST, entitled, "Need for Humus in Soils of Western Kansas," was reprinted in last week's *Kansas Farmer*.

The dairy school made 5092 pounds of butter in the month of February. Except a small quantity sold locally, the entire amount was marketed in Providence, R. I., at the highest prices.

On Saturday last, Miss Josephine Harper lectured before the farmers' short course on "Dairying in Sweden." The Domestic Science Department furnished the illustrative experiments and demonstrations.

The students attending the short course in dairying are now receiving practice in printing butter, about one hundred fifty pounds being printed daily. Instruction is given with Eureka, Lafayette and All Over butter printers.

Regents E. T. Fairchild and Wm. Hunter were here last Friday and Saturday on College business. They attended chapel on Saturday morning and feasted their eyes on the multitude of students attending the morning exercises.

The Domestic Science Club of Manhattan, at its last meeting elected Miss Josephine Harper president and Miss Alice Rupp secretary. Miss Stoner was elected a delegate to the state federation of women's clubs, which meets in Leavenworth some time next May.

Hon. F. D. Coburn, secretary of the State Board of Agriculture and newly appointed Regent of the Agricultural College, has kindly consented to give the students an address, "A Talk on Letter Writing." The lecture will be given in the chapel March 22, at 7:30 in the evening.

Last week the Farm Department sent to the State printer a bulletin on "Soy Beans in Kansas in 1900." This gives the record of experiments in raising one hundred acres of soy beans on the College farm in 1900 and the reports on raising soy beans by three hundred farmers scattered over seventy-six counties.

The Horticultural Department is making plans to extend the experiments with forest trees suitable for different localities and situations. The low ground along the creek north of the farm barn and the high hills of the old College farm offer extremes of soil and moisture, while the campus and the belts behind the buildings furnish medium conditions.

Euclid N. Cobb, a prominent institute worker and agricultural writer of Illinois, has the following to say of Mrs. Nellie S. Kedzie, formerly professor of domestic science at this College: "I am proud of numbering so gifted and useful a lady among my friends. She is doing a vast amount of good in our state, in her classroom as well as in the institutes."

Professor J. D. Walters addressed the Ionian society at their meeting Saturday afternoon, on the subject of "How to Get On in the World." He gave them algebraic formulas for both success and failure, but as there were variables in his equations he advised the young women to study mathematics as a first step for understanding the causes of true happiness.

H. M. Kirkpatrick & Son, Wolcott, Wyandotte county, have donated to the Farm Department the three-year-old Poland-China sow, Nancy Hadley 2d. She is a good individual and belongs to one of the best strains of Poland-Chinas in America. Her sire, Hadley Jr., sold for $1500 and is said to have more prize records than any other Poland-China, living or dead.

Mr. Ova Flaten, representing the Vermont Farm Machine Company, Bellows Falls, Vermont, visited the dairy school Monday and Tuesday in the interests of the United States cream separator manufactured by his company. Mr. Flaten was formerly superintendent of the dairy herd at the Minnesota Agricultural College. While here he gave the dairy school classes an interesting lecture.

The entire new plant of the Manhattan Electric Light Company was put in operation last week. It is one of the most complete in the State and has a capacity of two thousand incandescent lights. Heretofore the current has been turned off at midnight, but from now on an all-night service will be mantained. The company now has two complete plants, but the smaller one will be sold to some smaller town.

We are in receipt of a copy of the report of the U. S. Department of Agriculture, on the "Agricultural Experiment Stations of the United States," a work originally prepared to accompany the exhibits of these stations at the Paris exposition. The volume has had such a call that an extra edition has been prepared by the department. It contains six hundred thirty-six pages of reading matter, nearly a hundred fine half-tones, and is one of the handsomest publications issued by the department.

The Experiment Station has just received twenty-five varieties of grass seeds from the United States Department of Agriculture for experimental culture. A number of these are to be grown with the object of increasing the supply of seed available for experiments elsewhere. The quantities of these seeds sent are small in most cases and will be cared for by the Botanical Department. The grass garden of this department is one of the most interesting and instructive object-lessons on the grounds.

The War Department announces that all persons entering the army under the reorganization act, whether private soldier or commissioned officer, applying for promotion, must submit to uniform examination. There will be no discrimination between civilian and the volunteer or the regular soldier in this bestowal of commissions. There will be a rigid physical examination and a mental examination, including English grammar, orthography, reading, writing from dictation, mathematics, including arithmetic, algebra to equations of the first degree, logarithms, elements of surveying, geometry and trigonometry, geography, history, United States constitution and government, and elements of international law. In the case of applicants for line places, the candidates will be examined in the appropriate drill regulations. Special attention is to be given to the moral character and aptitude of the candidate generally, and in this connection the board will take into consideration certificates or diplomas from established institutions of learning.

The State of Kansas through its representatives has shown a wise and liberal spirit toward the Agricultural College. Appropriations aggregating $196,253.40 have been made and the bulk of it will be expended in Manhattan for services and materials. The College has a warm place in the affections of the people. It is well patronized and well provided for. Now the town has a duty to perform. It must show its appreciation in a substantial way. First of all, a vetrified brick walk should be built from the business section to the College gate. The present rough and tortuous route is little less than a disgrace to town and College. Probably no stranger ever set foot in town who did not make unfavorable remarks about the walks. A wide smooth walk to the College would be a great convenience and of much value. As soon as possible the entire system of stone walks should be replaced and the streets beautified and kept in good repair. The city as a corporation cannot do it all. The individual has a duty to perform in the way of making his premises more attractive.—*Mercury.*

Col. Guilford Dudley, of Topeka, and Prof. E. B. Cowgill, editor of the *Kansas Farmer*, spent Friday morning lecturing to the classes in Agriculture. The sixteen different classes in Agriculture were combined each hour and each of the speakers gave these classes two lectures. Col. Dudley was accompanied by his niece, Miss Walker. and both spent the afternoon visiting the Domestic Science classes.

W. P. Goode, Lenexa, Johnson county, has donated to the Farm Department the two-year-old Poland-China sow, Chief's Mortgage Lifter. She was sold at auction in Kansas City for $150 and is almost an ideal Poland-China. For hours before the sale her pen was surrounded by admiring breeders who wanted her for a show animal. Mr. Goode has two sons in the farmers' short course, and has in previous years sent three other children to this College. He is an enthusiastic believer in the Agricultural College and selected this animal as his choice out of a herd of one hundred fifty pure-bred hogs that the students might know what form of a hog would make the most money.

From the *Mail and Breeze*: "The Kansas Agricultural College has had good luck in the present legislature and it is largely through the effective work of Representative Frank M. Emmons, of Riley county. In addition to the appropriation for current expenses, the Agricultural College will receive $70,000 for a new chemical laboratory, to replace the building that was destroyed last year. This will give the Kansas College the largest and best equipped laboratory of any agricultural institution in the country. Mr. Emmons has also secured an appropriation of $10,000 for an addition to the library and $5,000 for a gymnasium. Representative Emmons makes a model legislator. He is a tireless worker, wins friends easily, and never lets up on a proposition until he has won his fight."

The Experiment Station is constantly in receipt of requests for seeds. The Station does not have seeds for general distribution. All seeds distributed for experiment by the Department of Agriculture must have the indorsement of the director of the experiment station of the state in which the applicant resides. In this way the station indirectly assists citizens desiring to secure seeds for purely experimental purposes. It has none of the ordinary sorts at its disposal to enable the applicant to save an expenditure of a few cents for common vegetable seeds. The Station has on hand about one hundred pounds of improved sorgum seed furnished by the department which it will distribute to applicants as long as it holds out. The varieties are: Minnesota Early Amber, Anber, Collier, and Colman. The Station has also a limited amount of choice sugar-beet seed which will be furnished for experimental purposes to farmers who will grow the beets under the proper conditions to produce a crop rich in sugar, where five or more farmers of a given locality unite to make the experiment. For any of the above, address Agricultural Experiment Station, Manhattan, Kan.

ALUMNI AND FORMER STUDENTS.

Cora Ewalt Brown, '98, has gone to Chicago to take a three-month's course of instruction on the harp in the Chicago Musical College. Her teacher will be Miss Murray, one of the finest lady harpists in the country.

C. A. Murphy, '87, has been elected teacher of sciences in the Clay county high school. He has been filling a similar position in the Hutchinson schools for some time. His excellent work in that line while a student here has been of much assistance to him.

G. F. Wagner, '99, has returned to take charge of the home place near Enterprise, on account of his father's failing health. He brought with him some pure-bred Angus stock with the intention of building up a pure-bred herd. He hopes to visit the College this spring.

George Hopper, '85, formerly foreman of orchards in the Horticultural Department, was at Manhattan last week engaging mechanics to work for him in Oklahoma, where he has a large contract. He says that the second generation of Hoppers will be here in September to swell our attendance and that, as a first instalment, he will send two of them.

A letter from Mary E. Wilkin, second year in 1895, announces the death of her mother. She has been a sufferer from chronic disease for a number of years. This condition aggravated an attack of the grippe, to which she succumbed February 2, 1901. She was well known to many of the students when she lived here with her sons and daughter while they were attending College. They mourn her loss, but realize that for herself a better life has begun.

J. G. Haney, '99, Assistant in field and feeding experiments in this College and Experiment Station, has resigned his position, and left on the 4th. inst. for Chihuahua, Mex., to take up his new duties as agricultural agent for the Chihuahua & Pacific Railway Co. It will be his province to study the agricultural possibilities of the region tributary to this railroad, and to develop the art in every way feasible. Mr. Haney's early life, training and experience, with his large fund of common sense, should make his mission a successful one.

In the appointment of R. J. Brock, '91, as a Regent of the College, the special interest of alumni in the institution has again received recognition. Since his graduation, Mr. Brock has been engaged in the study and practice of law, in which field he has won success and a reputation for courage, dash and ability. He is now serving his second term as county attorney of Riley county, being re-elected without opposition last fall. His sound sense, wide observation of business life, legal knowledge, and familiarity with the College by reason of graduation from it, and residence in Manhattan, should combine to make him one of the best Regents the institution has had.

THE FORT HAYS MILITARY RESERVATION.

AN ACT Relating to the Fort Hays military reservation; locating thereon an experimental station of the State Agricultural College and a western branch of the State Normal School; providing for the preservation of the native timber land for a public park and making appropriation therefor.

Be it enacted by the Legislature of the State of Kansas:

SECTION 1. The Boards of Regents of the State Agricultural College and of the State Normal School, respectively, are hereby authorized to locate and establish an Experimental Station of the State Agricultural College and a branch or auxiliary of the State Normal School, on the Fort Hays military reservation.

SEC. 2. The following-described tracts of land lying within the limits of the reservation aforesaid, to-wit: Section 36, Township 13, S., Range 19, W.; Section 31, Township 13, S., Range 18, W.; Section 1, Township 14, S., Range 19, W.; Sections 6 and 8, the east half of Section 7, the north half of Section 17, and the northeast quarter of Section 18, all in Township 14, S., Range 18, W.; are hereby placed under the direction of the Regents of the State Normal School. It shall be their duty to lease or rent the said lands to the best advantage and all moneys derived from rents for such lands shall be collected by the Regents aforesaid, who shall deposit the same with the Treasurer of the Board, to be expended by the said Board of Regents for the equipment and maintenance of said auxiliary of the State Normal School.

SEC. 3. All the remaining lands of the reservation aforesaid are hereby placed under the direction of the Board of Regents of the State Agricultural College, except the north half of Section 5, Township 14, S., Range 18, W.; which with the buildings thereon shall be used jointly as may be determined by the Boards of Regents of the institutions aforesaid.

SEC. 4. The said Board of Regents of the State Normal School shall employ a principal and such assistant teachers and janitors as the needs of the school may demand; shall prescribe the course of study, not extending over more than two years, conditions of admission, and such other regulations as may be required for its successful conduct, provided that such course of study shall embrace only such branches as may prepare pupils for the advanced academic and professional work provided at the State Normal School at Emporia.

SEC. 5. All persons meeting the requirements for admission prescribed by the Board of Regents shall be admitted to said school; and on declaring their intention to fit themselves to teach in the schools of Kansas shall be exempt from all fees, save a small matriculation fee which the Board of Regents may require. Students not intending to teach may be charged a reasonable fee at the discretion of the Board.

SEC. 6. Any person of good moral character over sixteen years of age having been in actual attendance at least twenty weeks at the above-named school and having completed the course of study prescribed by the said Board of Regents shall be awarded a cer-

tificate which shall be a legal certificate to teach in any of the public schools of the State, except high schools, and good for one year. Said certificate shall also admit the holder to the third year's work at the State Normal School at Emporia without examination.

SEC. 7. The President of the State Normal School shall be president of said auxiliary normal school with such duties and responsibilities as the Board of Regents may determine.

SEC. 8. The sum of seven thousand dollars is hereby appropriated for the fiscal year ending June 30, 1902, and the sum of five thousand dollars for the fiscal year ending June 30, 1903, is hereby appropriated for the current expenses and improvements of said auxiliary normal school, the said amounts to be expended under the direction of the Board of Regents of the State Normal School.

SEC. 9. The Board of Regents of the State Agricultural College is hereby authorized to locate and establish on the reservation aforesaid an Experimental Station of the Agricultural College and shall adopt such measures as may be necessary to place the same in successful operation and to preserve the land upon which the native timber is now growing as a public park.

SEC. 10. To carry out the provisions of Section 9 of this act, the sum of three thousand dollars is hereby appropriated for the fiscal year ending June 30, 1902, and three thousand dollars for the fiscal year ending June 30, 1903.

SEC. 11. All sums of money payable out of the appropriations specified in Section 8 of this act shall be upon vouchers approved by the Board of Regents of the State Normal School, and all sums payable out of the appropriations specified in Section 10 shall be upon vouchers approved by the Board of Regents of the State Agricultural College.

SEC. 12. The Auditor of State is hereby authorized to draw his warrants on the Treasurer of State for the several sums and purposes specified in this act, upon verified vouchers approved by the Boards of Regents of the State Normal School or the State Agricultural College. *Provided*, That no portion of the money appropriated in this act shall be expended by the Board of Regents until the attorney general of the State of Kansas shall first notify the Governor and the Board of Regents that the title to the land in said reservation is unimpaired, and the land is available under the terms of the act of Congress ceding said reservation to the State.

SEC. 13. This act shall take effect and be in force from and after its publication in the official State paper.

NOTICE TO THE ALUMNI.—Notice is hereby given that a new constitution and by-laws will be submitted to the association for adoption at its next annual meeting. A form proposed by the committee on revision was presented at the last annual meeting, upon which action was postponed in order to give the members ample time for its consideration. This appears in another place in this issue of the INDUSTRIALIST. J. T. WILLARD.

Volume 27. Number 23.

THE INDUSTRIALIST

ISSUED WEEKLY BY

KANSAS STATE
AGRICULTURAL COLLEGE

☆ ☆

Editor-in-Chief, - - *Pres. E. R. Nichols*
Local Editor, - - *Prof. J. D. Walters*
Alumni and Former Students, *Prof. J. T. Willard*

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Professor of Applied Chemistry.
——.....——
Professor of Botany.
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——.....——
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Professor of Physics and Electrical Engineering.
C. E. GOODELL, A. M. (Franklin).....626 Houston street
Professor of History and Economics.
SEPTIMUS SISSON, S. B. (Chicago), V. S. (Toronto).....Cor. Manhattan avenue and Moro
Professor of Zoölogy.
TAIT BUTLER, V. S. (Toronto).....527 Poyntz avenue
Professor of Veterinary Science.
MISS HARRIET HOWELL, (Pratt Institute).....105 S. Juliette avenue
Superintendent of Domestic Art.
JOSHUA D. RICKMAN, I. T. U.....911 Osage street
Superintendent of Printing.
MISS JOSEPHINE T. BERRY, A. B. (Kansas University).....801 Poyntz avenue
Librarian
B. S. MCFARLAND, A. M. (Miami).....415 Pierre street
Principal Preparatory Department.
MISS GERTRUDE WILLIAMS.....105 S. Juliette avenue
Director of Physical Training.

MISS LORENA E. CLEMONS, B. S. (K. S. A. C.), Secretary.....Corner Fourth and Laramie

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D. H. OTIS, M. S. (Kansas State Agricultural College).....College Hill
Assistant Professor of Dairying.
WILLIAM ARCH MCKEEVER, A. M. (Kansas University).....621 Houston street
Assistant Professor of English and Philosophy.
MISS JOSEPHINE C. HARPER, Instructor in Mathematics.....Corner Sixth and Pierre streets
MISS ALICE RUPP, (Indiana State Normal), Instructor in English.....620 Houston street
CHARLES EASTMAN, Cadet Major and Acting Commandant.....611 Poyntz avenue

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William L. House, Foreman of Carpenter Shop.....Corner Sixth and Colorado
Chas. W. Pape, M. S. (K. S. A. C.), Ass't in Zoölogy and Ass'nt Curator Museum..918 Osage st
R. W. Clothier, M. S. (K. S. A. C.), Assistant in Chemistry. Fremont, between Fifth and Sixth
Margaret J. Minis, Assistant Librarian.....Fourth and Moro streets
R. H. Brown, M. T. (Kan. Con. of Music), B. S. (K. S. A. C.), Ass't in Music. 817 Houston street
J. M. Westgate, M. S. (K. S. A. C.), Assistant in Botany, Cor. Manhattan avenue and Vattier
May Secrest, B. S. (K. S. A. C.). Assistant in Domestic Art, Cor. Leavenworth and Seventh
Wm. Anderson, B. S. (K. S. A. C.), Assistant in Mathematics. Cor. Humboldt and Juliette ave
Gertrude Barnes, Assistant Librarian.....Cor. 9th and Moro
Albert Dickens, B. S. (K. S. A. C.), Assistant in Horticulture, Fremont and Manhattan avenue
William Baxter, Foreman of Greenhouses.....——
Mary Pritner, B. S. (K. S. A C.), Assistant in Domestic Science.....Cor. 7th and Leavenworth
Theodore Lindquist, M. S. (Northwestern), Ass't Physics.....Cor. Fifth and Humboldt
W. M. Sawdon, B. S. (Purdue), Assistant in Mechanics.....Juliette and Houston
Ada Rice, B. S. (K. S. A. C.), Assistant in Preparatory Department.....Osage and 8th. street
Louis Wabnitz, Foreman Iron Shops.....5th and Osage
Henry Van Leeuwen, (Univ. Wis. D. S.) Inst'r in Cheese Making.....Manhattan and Kearney
E. W. Curtis, (Univ. Wis. D. S.) Instructor in Butter Making.....——
Florence L. Grant (Mass. Normal Art School), Assistant in Drawing.....Fourth and Osage
A. T. Kinsley, B. S. (K. S. A. C.), Assistant Veterinary Department, Tenth and Kearney sts
Elizabeth Agnew, B. S. (K. S. A. C.), Assistant in Domestic Science, Ninth and Moro streets
Jesse B. Norton, B. S. (K. S. A. C.), Assistant in Entomology.....——
E. C. Gasser, Foreman of Foundry and Blacksmith Shop.....——
Ina E. Holroyd, B. S. (K. S. A. C.), Assistant in Preparatory Department.....9th and Moro
Jacob Lund, M. S. (K. S. A. C.), Engineer.....Cor. Tenth and Kearney
C. Jeanette Perry, B. S. (K. S. A. C.), Executive Clerk.....Corner Colorado and Fifth
Alice Melton, B. S. (K. S. A. C.), Clerk in Director's office.....——
W. R. Lewis, Janitor.....N. E. corner Main College Building
Archie Huycke, Secretary to President.....Manhattan avenue and Kearney

THE INDUSTRIALIST.

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EX-PRESIDENT G. T. FAIRCHILD DEAD.

A TELEGRAM received last Saturday, from Berea, Ky., announces the death, after a lingering illness, of ex-President G. T. Fairchild, of this College. He died at Columbus, Ohio, on Friday, March 15, and his funeral will take place at Berea, his home, on Wednesday afternoon, at three o'clock. His health had been known to be failing for some time, and it seems that he had gone to Columbus for medical treatment. Mrs. Fairchild is reported to be in feeble condition also, and her friends are fearing that the shock may endanger her life.

Prof. George Thompson Fairchild, A. M., LL. D., was born in Brownhelm, Lorain county, Ohio, October 6, 1838. His father was a farmer and teacher. There were four sons and four daughters, of whom George T. was the youngest. He was educated at Oberlin College, graduated in the classical course in 1862 and in the department of theology in 1865, and, though never a pastor, was afterwards ordained to the ministry of the Congregational church. In the same year he was elected instructor in the Michigan Agricultural College, and the next year was made professor of English literature, which chair he filled until his call to the presidency of the Kansas State Agricultural College. During a year's absence of the president of the Michigan college, Professor Fairchild had been acting president by choice of the board of regents.

Professor Fairchild became the president of the Kansas State Agricultural College in December, 1879, and remained at the head of the board of instruction for about seventeen and a half years, *i. e.*, to the close of the collegiate year 1897. He was the third president of the institution, and among all the men who have contributed to its growth and development he is undoubtedly the most prominent. His arrival at Manhattan gave a new impetus to the teaching force and new vigor to the student body. His experience at Michigan enabled him to place the College within a short time in the ranks of the best institutions of the kind in

America, and during all the years of his connection with the College he was living for but one ideal—the mental, moral and physical development of the young men and young women of Kansas who had entrusted themselves to his care. The attendance grew from year to year, appropriations by the State legislature became more abundant, and the name of the College became a synonym for thorough educational work. During the first year of his connection with the College the attendance was but two hundred seventy-six; during the last year it had grown to seven hundred thirty-four.

Professor Fairchild was a born disciplinarian, not only of students, but of all who came in contact with him. His will was law to all his collaborators, though he ruled with easy grace and perfect dignity. His standard of morality was high, and therein consisted his strength and influence. His studies and work in English literature had given him the ability of polished and careful expression, and this, connected with a graceful stature, a bright eye and a natural tact, made him a power in his profession. He was a good logician and a rapid generalizer, and those who knew him well assert that he was a man of accelerated growth. He was systematic in everything—a man of order and correct habits. He was a master of all details of his work, and nothing was too small to escape his attention.

Educational ideals are subject to the general laws of evolution. President Fairchild was the product of a school of pedagogics that passed its zenith several decades ago. He was a strong believer in broad, popular education, and carried his maxims into his college work. He had no use for early specializing, substitute studies, electives, and short courses, and he often expressed himself that the farmers' institute could do but little good beyond the inspiration to thinking and reasoning which it evidently produced. He believed that the thoroughly educated man or woman could easily acquire technical knowledge of any kind, and he strenuously opposed technical training as a substitute for general training. The question of dividing the course of study into special courses or schools—a school of agriculture, a school of domestic science, a school of engineering, etc.—was often discussed by the Faculty, but found little favor with him. His ideal was the harmoniously developed man or woman.

President Fairchild was a prominent member of the National

Educational Association, and contributed several valuable papers to the published proceedings of that body. At the session at Saratoga, N. Y., in 1885, he was made a member of the National Council of Education and appointed on the committee of technological education. At the meeting in Chicago, in 1877, he was made president of the industrial section, and in the following year, at San Francisco, he was reëlected to the same position. In 1886, the Faculty of the Kansas State Agricultural College presented him with a life directorship in the National Educational Association. In the American Association of Agricultural Colleges he held twice the office of vice-president, and his services on important committees have had directing effect upon that organization. One of his brothers, James H. Fairchild, was for many years president of Oberlin College, and another brother, E. H. Fairchild, president of Berea College, Kentucky.

The incidents connected with the resignation from the executive chair and the departure from Manhattan are of such recent occurrence that little need be said concerning them. Among the friends and patrons of the College there were many who did not coincide with him in all of his educational maxims. When in the spring of 1897 the fusion party came into power the newly appointed Board of Regents disagreed with him, formulated a code of "fundamental principles" to which he would not subscribe, and forced his resignation. He departed from the College where he had worked and taught for the best years of his life with a heavy heart, feeling to the end of his days that he had been misunderstood and wronged.

The last four years of his life were comparatively uneventful. After a long-needed and well-deserved rest with friends and relatives in the eastern states, during which he wrote a book on "Rural Wealth and Welfare," he accepted a call to the chair of English literature at Berea College, Kentucky. He remained in constant correspondence with many of his former pupils and friends in Kansas, and was often appealed to for advice. His children, of whom he had five—two daughters and three sons—were a constant source of satisfaction and happiness to him. The oldest of the sons became a minister, the second a medical specialist, and the third is one of the most widely known experts of the U. S. Department of Agriculture. Doctor Fairchild in his declining years had the great satisfaction of seeing his work at

Manhattan continued and expanded. It would be but proper that by common consent among the students and members of the Faculty the Main building of the Agricultural College, of which the center part and the south wing were erected under his care, should be called "Fairchild Hall" as a monument to his life work.

J. D. WALTERS.

GEOMETRY: A HISTORIC SKETCH.

FIRST PERIOD: *Egyptians and Babylonians.*—Geometry is supposed to have had its origin in land-surveying made necessary in ancient Egypt on account of the periodical inundations of the Nile which swept away the landmarks in the valley of the river. In the British museum is to be found the oldest existing mathematical manuscript written by the Egyptian priest, Ahmes, and probably itself a copy of an earlier treatise of about 3400 B.C. It contains sections on geometry, particularly the determination of the areas of simple surfaces, the accompanying figures being rectilinear or circular. Among them are found isosceles triangles, rectangles, isosceles trapezoids, and circles. The area of the rectangle is correctly determined; the formulas, however, for the areas of the isosceles triangle and trapezoid are incorrect. The area of the circle follows, with the remarkably accurate value of $\pi = (\frac{16}{9})^2 = 3.1605$. Among the problems of geometric construction one stands forth preëminent by reason of its practical importance, viz., to lay off a right angle. The solution of this problem, so vital in the construction of temples and palaces, belonged to the profession of rope stretchers. They used a rope, divided by knots into three segments, probably corresponding to the numbers 3, 4, 5.

Perhaps the most important contribution to geometry by the Babylonians is the divison of the circumference of the circle into three hundred sixty degrees, a very convenient number on account of its high divisibility. Their construction of figures usually had some religious significance, in which right angles and circles with inscribed regular polygons played a prominent part. Among the Egyptians, the projective representations show no evidence of any knowledge of perspective. Our knowledge of the real nature of their geometry is gained almost entirely from the manuscript of Ahmes.

SECOND PERIOD: *The Greeks.*—The earliest Greek geometer of

note was Thales, who lived about 600 B.C. He was familiar with the theorems regarding the base angles of an isosceles triangle and the angle inscribed in a semicircle. He knew how to determine the height of an object by comparison of shadows, and perhaps herein was the beginning of the theory of similarity. Pythagoras gave proofs of two fundamental theorems, the one concerning the relations of the sides of a right triangle, and the other concerning the sum of the angles of a triangle. His followers knew the golden section and the regular polygons involved in the regular polyhedra.

Hippocrates wrote the first elementary book of mathematics, in which he represented a point by a single capital letter and a line by two. He also attempted the solution of the problem of the quadrature of the circle. The philosopher Plato contributed to geometry through definitions and axioms and the introduction of the analytic method. Euclid's *Elements*, the greatest work of all, appeared about 300 B.C. Suffice to say that it has been the basis of elementary instruction in geometry down to the present day.

The greatest mathematical genius of the ancient world now appeared in Archimedes. His extant works on plane geometry are three in number, (*a*) The Measure of the Circle, (*b*) The Quadrature of the Parabola, and (*c*) one on Spirals. In the first he shows that π is less than $3\frac{1}{7}$ and greater than $3\frac{10}{71}$; in the second the problem is reduced to the determination of the sum of an infinite geometrical series; the work on Spirals contains twenty-eight propositions on the properties of the curve now known by his name. On geometry of three dimensions the extant works of Archimedes are two in nunber, (*a*) The Sphere and Cylinder, and (*b*) Conoids and Spheroids. The first contains sixty propositions, among them many important ones on the surface and volume of a pyramid, cone, and sphere. The second contains forty propositions on quadrics of revolution, mostly concerned with an investigation of their volumes. Archimedes also wrote works on mechanics and hydrostatics containing discussions on centers of gravity, levers, and floating bodies.

In the field of elementary geometry Apollonius gave a solution of the taction problem, Heron deduced the well-known formula $\sqrt{s(s-a)(s-b)(s-c)}$ for the area of a triangle. About this time the fraction $\frac{22}{7}$ was used as an approximation for π, the value used at present in ordinary computations.

In the early centuries of the Christian era knowledge in geometry was advanced but little. In the *Almagest* occurs Ptolemy's theorem regarding the inscribed quadrilateral and the remarkably accurate value 3.14166... for π. The last notable name in elementary geometry among the Greeks is that of Pappus, who lived in the third century of the Christian era. His *Collection* consisting of eight books contains discussions on isoperimetric figures, tangency of circles and similarity in case of circles.

The theory of conic sections was brought to a high state of development in the third century B. C., by Apollonius. His treatise contained about four hundred propositions, among them very many of those to be found in modern text-books, such, for example, as the three kinds of curves among the plane sections of a cone, theorems on foci and secants, harmonic division of lines, intersection of systems of conics, the theory of maxima and minima, center of curvature, normals, similar conics, and conjugate diameters. Not the least important feature of his great work lies in the fact that therein is laid the foundation of the modern theory of projective ranges and pencils.

The three famous problems of antiquity, namely, the duplication of the cube, the trisection of the angle and the quadrature of the circle baffled all attempts at an elementary solution on the part of the Greek mathematicians, as they have likewise all efforts since. However, the tremendous activity stimulated led to the discovery of many beautiful curves of higher order, notably the cissoid, conchoid, quadratrix, and helix.

In the realm of elementary geometry of space, reference has been made to the early knowledge of the five regular bodies, four of which constituted the elements of water, air, earth, and fire, and the fifth formed the boundary of the universe; also to the important discoveries of Archimedes. Of surfaces of the second order, the Greeks knew the elementary surfaces of revolution and in addition the paraboloid, ellipsoid and hyperboloid of revolution. They were also not unacquainted with the methods of projection.

In reviewing this second period we can not but remark upon the high development of geometry by the Greeks. Even the wonderful progress of mathematics in modern times is undeserving of greater credit.

THIRD PERIOD: *Romans, Hindus, and Arabs.*—Among the Romans independent investigation in mathematics almost wholly

disappeared. What they gained from the Greeks served practical ends exclusively. Portions of Euclid were translated to aid the work of the surveyors. Hindu geometry, although dependent upon the Greek, was cast in an arithmetical mold. Many inaccuracies are to be found in the writings of the Hindu mathematicians and results are often given without demonstration. Bhaskara states the theorem, adds the figure, and writes "Behold!" Our modern text-books on geometry, if constructed upon such a plan, would doubtless prove more entertaining to sundry indisposed individuals of this twentieth century. The Arabs, during this period, produced nothing beyond what had been reached in the golden age of Greek geometry.

FOURTH PERIOD: *From Gerbert to Descartes.*—The small extension of geometric truth during this period from the tenth to the seventeenth century took place mostly among the western nations of Europe. With Vieta and Kepler began a time in which the mathematical spirit commences to reach out beyond the works of the ancients. Among the developments worthy of mention are the geometric constructions of the roots of equations of the second and third degrees, the study of regular polygons and star polygons, the extension of the conics of Apollonius, stereometric investigations, and an advance in the methods of projection. To this period also belong the oldest known attempts to solve geometric problems with only one opening of the compass.

FIFTH PERIOD: *From Descartes to the Present.*—The union of algebra with geometry, thus giving rise to analytic geometry, inaugurated a new era in the history of mathematics. The reference of curves of different orders simultaneously to one system of coördinates was the real invention of Descartes. The geometric study of the properties of any curve was thus replaced by the discussion of its algebraic equation. The division into algebraic and transcendental curves was introduced by Leibnitz. A consequence of the acceptance of the Cartesian system was the admission of negative roots of algebraic equations to the same rights and privileges as positive roots. Cavalieri, in the endeavor to find a general process for the determination of areas and volumes, invented the method of indivisibles afterward superseded by the integral calculus. Pascal, at the age of sixteen, discovered the theorem on the inscribed hexagon and later deduced therefrom over two hundred corollaries; he also investigated the properties

of the well-known cycloid curve. Newton, who discovered the law of universal gravitation by mathematical reasoning, is one of the great names of this period. His chief work, the *Principia*, has been called the greatest production of the human intellect. It contains in part many noted geometric theorems, with especial reference to their application to physics and astronomy. Newton also gave an exhaustive discussion of the cubic curve leading the way to the study of curves of higher order. The extension of the Cartesian method to space of three dimensions was made by Euler with fruitful results.

Among the special investigations of this period are included the beginnings of the study of geodetic lines and curvature of surfaces, the representation of areas as positive and negative, and the extension of the theory of transversals. Worthy of mention are the investigations in the theory of regular geometric figures by that greatest of mathematicians, Gauss.

Previous to the nineteenth century the vast strides taken in geometry were accomplished by the assistance of the analytic method. Projective geometry makes use of the synthetic method, excludes the idea of measurement, and is a creation of recent times. Poncelet, Chasles, Steiner and Von Standt are the most eminent names connected with this system. The subject has brought into prominence the ideas of correspondence among figures, and the principles of continuity and duality. With projective geometry is most closely connected the modern descriptive geometry.

During the last century a generalization of the Cartesian geometry through the use of a triangle of reference has given rise to modern analytic geometry. This system, by the employment of homogeneous coördinates, yields results of remarkable elegance and symmetry.

In the later part of this period the subject of differential geometry or the theory of curvature of surfaces has been developed. Starting with an ordinary point on the surface, the entire surface may be characterized by analytic formulas with the aid of the differential calculus.

After accepting Euclid completely for more than two thousand years, mathematicians began to question the parallel axiom. The statement has never been proved, however, and in 1829 Lobatchewsky showed that we can not dispense with the axiom in our

space. A system of geometry in which the axiom in question has no place has been constructed under the name of non-Euclidean geometry.

Perhaps the most recent development of our subject is to be found in the attempts to build up a geometry of n dimensions. Efforts in this direction are the outgrowth of the tendency toward generalization and the continued perfection of the methods of analysis.

Although algebra is the fundamental branch of mathematics, and although modern analysis has been the most powerful agent in the discovery of its truth, yet the most beautiful results are to be seen in the field of geometry. The growing tendency in modern times has deen to bring the analytic and synthetic methods into closer relationship. The inevitable result of this more perfect union will be the highest development of mathematics.

B. L. REMICK.

The enrolment for the winter term now drawing to a close, in farm classes shows a heavy increase, as the following list by classes indicates:

Study.	*Instructor.*	*No. in Class.*
Breeds and Breeding, Short Course	Cottrell	18
Breeds and Breeding, Dairy Course, one-half term	Cottrell	36
Breeds and Breeding, Dairy Course, one-half term	Cottrell	26
Feeds and Feeding, Short Course	Cottrell	44
Feeds and Feeding, Short Course	Cottrell	46
Feeds and Eeeding, Third Year, one-half term	Cottrell	15
Agriculture, First Year	Otis	62
Dairying, Second Year	Otis	23
Agriculture, First Year	Otis	65
Dairying, Dairy Course, one-half term	Otis	65
Dairying, Short Course, one-half term	Otis	13
Milk Testing, Dairy Course	Otis	72
Milk Testing, Second Year	Otis	25
Milk Testing, Short Course, one-half term	Otis	13
Agriculture, Short Course, one-half term	Haney	45
Agriculture, Short Course, one-half term	Haney	41
Feeds and Feeding, Dairy Course, one-half term	Haney	30
Feeds and Feeding, Dairy Course, one-half term	Haney	31
Agriculture	Haney	55
Agriculture	Haney	37
Farm Industrial, Short Course, one-half term	Haney	16
Creamery Butter Making, Dairy Course, (lectures)	Curtis	56
Creamery Butter Making, Dairy Course, (laboratory),	Curtis	60
Butter Making, Short Course, one-half term	Curtis	15
Butter Making, Second Year	Curtis	25
Dairy Bookkeeping, Dairy Course, one-half term	Van Leeuwen	35
Dairy Bookkeeping, Dairy Course, one-half term	Van Leeuwen	23
Farm Bookkeeping, Short Course, one-half term	Van Leeuwen	51
Farm Bookkeeping, Short Course, one-half term	Van Leeuwen	36
Cheese Making, Dairy Course	Van Leeuwen	17
TOTAL		1096

THE INDUSTRIALIST.

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KANSAS STATE AGRICULTURAL COLLEGE.

Manhattan, Kansas.

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PRES. E. R. NICHOLS.....Editor-in-Chief
PROF. J. D. WALTERS.....Local Editor
PROF. J. T. WILLARD.....Alumni Editor

LOCAL NOTES.

President Nichols was at Topeka on Friday and Saturday attending a session of the State Board of Education and looking after College business.

The closing examinations of the present winter term will be held on Thursday and Friday, March 21 and 22. The examination of new students for the spring term will be held on Monday, March 25, and the work of instruction will begin on Tuesday, March 26.

Superintendent Rickman enjoyed a visit last week from his sister and brother-in-law, Mrs. and Mr. John Trout, of Pratt, Kan. Mr. Trout is an extensive farmer and stock raiser and naturally took much interest in the educational work of the Agricultural College, which he had not seen before.

The two entertainments of the society lecture course which were given this week were entirely satisfactory and well patronized. The Fisk Jubilee Singers fully sustained their high reputation, and the lecture by Rev. James McClary was one of the richest treats ever given in the College chapel.

Mr. C. L. Shear, assistant agrostologist of the Department of Agriculture, visited the College last week. He came to consult the Experiment Station Council in respect to some co-operative experiments by the division of agrostology and the station on the improvement of pasture and range lands in Kansas. On Friday, with Professor Willard, he proceeded to Harper county, where the experiments are to be conducted.

The second-term students in the short course in Agriculture have arranged a special program for Friday afternoon and evening, March 22, to be given in the assembly room of Agriculture Hall. J. S. Parks, ex-state printer and president of the largest creamery in the world; W. F. Jensen, vice-president of the same company; T. A. Borman, editor of the *Dairy Age;* Gilford Dudley, banker and farmer, of Topeka, are to give addresses Friday afternoon. For the evening a program has been arranged by the sophomore dairy class, including an address by secretary of the State Board of Agriculture, Hon. F. D. Coburn. The invitation is general. No admission charges.

The assignment committee is hard at work making assignments for the spring term. The seniors are being assigned by Professor Willard, the juniors by Professor Walters, the sophomores by Professors Popenoe and Sisson, the freshmen by Professor Lockwood and Superintendent Howell and the preparatory students by Assistant Rice. It is intended to have all students assigned to work before the close of the present term.

The following program has been arranged for the meeting of the Manhattan Horticultural Society which will be held in Horticultural Hall, March 21:

What to Plant, How to Plant Vegetables.....Geo. O. Green
Small Fruits.....A. J. Nicholson
Orchard Fruits.....W. J. Griffing
Ornamentals.....T. C. Wells
Implements for Cultivation.....F. A. Marlatt

The oratorical contest between the literary societies Saturday, March 9, was a perfect success. Mr. T. J. Woodworth, of the Alpha Beta society, was awarded first place; Miss Margaret Minis, of the Ionians, second. The Webster society was represented in the contest by Mr. C. N. Allison and the Hamiltons by H. McCaslin. Superintendent Kendrick, of Junction City, Rev. Wyman, of Topeka, and Rev. Elledge officiated as judges. The successful Alpha Beta was presented with a valuable gold medal. Professor Metcalf acted as master of ceremonies, introducing the contestants.

Mr. Gasser, of Neosho, Mo., the father of Foreman E. C. Gasser, of the foundry and blacksmith shops, visited College for the first time last week. The old gentleman is well on the shady side of seventy, but still vigorous and bright. He told us of the days of his youth in the snowy Alps and at the shores of the blue Mediterranean, of his soldier days, and his experiences as a pioneer in the wild woods of southwestern Missouri, the rekindled fire in his eyes telling plainer than even his words that his life had been an active and eventful one. Mr. Gasser believes in education and the educational methods of the Agricultural College of Kansas, where several of his children have attended.

Now that the legislature has made provision for new quarters for the Departments of Chemistry, Physics, and Physical Training, it will be in order to discuss other needs of the College. There are many of these, but we believe that the Horticultural Department requires speedy assistance more than any other. The greenhouses have been entirely inadequate for years and the whole group of glass structures is dilapidated beyond repairs. The College should have, in addition to its six propagation pits, a well-heated and ventilated greenhouse of from ten to twenty thousand square feet of glass surface. A part of this building should be high enough to permit the full growth of all the representative plants usually found in botanical museums. Students of botany, horticulture, seed breeding, floriculture, arboriculture and ornamental gardening are everywhere being pro-

vided with such laboratories, and the Kansas State Agricultural College should not be permitted to remain behind those of other states, with regard to such an important equipment.

ALUMNI AND FORMER STUDENTS.

Geo. L. Clothier, '92, is now in Harper county superintending some experimental tree planting by the division of forestry. Last week he delivered a lecture in Anthony on the subject of forestry.

Harry N. Whitford, '90, will conduct the classes in phanerogamic botany during the annual session of the Biological Laboratory of the Brooklyn Institues of Arts and Sciences, at Cold Harbor, Long Island. This session is held during the months of July and August.—*Herald.*

Carl Rice, '97, of Company A, Sixteenth U. S. Infantry, is now stationed at Echague, Philippine Islands. An interesting letter home appears in the *Nationalist*, in which he gives a vivid picture of the difficulties of campaigning in Luzon. Though stationed at Echague, mail will reach him best if sent to Manila.

Congress has paid Geo. F. Thompson, of Manhattan [third-year student 1882 and Superintendent of Printing 1881 to 1887], $1,000 for the compilation of a history of the "Coinage Act of 1873." This volume is a complete record of all documents issued and the legislative proceeding concerning the act. It was published last spring and had a wide distribution during the late campaign. Mr. Thompson is the well-known editor-in-chief of the Bureau of Animal Industry at Washington.—*Mercury.*

It is with a feeling of sorrow that we are called to announce the death of a K. S. A. C. graduate in the far East. In Gen. McArthur's latest of casualties there appears the name of Sergt. Wm. H. Painter among the killed. Although not personally known to us or to many present students, he is well remembered by many of the Faculty and former students, and to the *Herald* as one of its subscribers. Sergeant Painter graduated here in 1895 and was a member of Company M, Forty-fourth U. S. V. Inf. He was killed in action at Santa Leucia, Island of Cebu, January 29.—*Students' Herald.*

Mrs. Nellie Kedzie ['76], of Peoria, Ill., a teacher of domestic science, will lecture on that subject in the Athenæum room in the Pepper building, under the auspices of the Athenæum and the woman's auxiliary. It was expected that she would be here March 16, but she sent word yesterday that she could not be here until the following week. Mrs. Kedzie has a national reputation as a speaker and is accepted as an authority on the subject of which her lecture will treat. Her engagement is the first effort on the part of the woman's auxiliary to interest the women of Kansas City in the establishment of a school of domestic science. —*Kansas City Star.*

TESTS OF SOY BEANS BY KANSAS FARMERS IN 1900.

(Press Bulletin No. 84, from Farm Department.)

The Kansas Experiment Station has received reports from 276 Kansas farmers who raised soy beans in 1900. These reports came from 72 counties. One hundred forty-nine farmers write that the soy bean is a profitable crop, 44 have a favorable opinion but need further trial, 34 report unfavorably and 35 think the crop a total failure. The others did not express an opinion.

Most of the successful farmers plowed and harrowed their ground as for surface planting of corn, a few listed or double listed, either listing shallow or else harrowing the furrows nearly full. The Early Yellow soy gave the best yield, only a few farmers having success with the late varieties.

The favorite method of planting was with a grain drill, stopping up all the holes but those that put the rows 32 inches apart, and dropping single beans 2 or 3 inches apart in the row. Corn planters with drill attachments and one-horse corn drills were frequently used. Objections were made that corn planters put the rows too far apart for best yield. The best yields were usually secured by planting as soon as corn planting was finished. Several farmers in eastern Kansas report that with them beans may be planted any time before July 1. The same cultivation as for corn was usually given. Eagle-claw attachments and five-toothed cultivators were frequently used.

The season was exceptionally unfavorable. Hot winds and drought from the time of blossoming to maturing cut the crop short and shriveled the beans. This was immediately followed by heavy and long-continued rains that injured the beans in shock and stack. The worst pest was rabbits, the injury from them varying from slight to the destruction of every stalk on 11 acres. In some places soy beans cannot be profitably grown as long as rabbits are so numerous. Some injury is reported by grasshoppers and other insects.

The yields were from nothing to 31 bushels of grain per acre and up to 2 tons of hay per acre, the hay being reported as nearly equal to alfalfa in value and superior to clover. Most of the yields were from 12 to 20 bushels per acre. On the College farm soy beans yielded 7.4 bushels per acre along side of Kafir-corn yielding 20 bushels and corn a total failure.

Many reports show a failure of seed to grow. Soy beans for seed must be kept in cool, well-ventilated bins, in thin layers. In buying seed, empty the sacks as soon as received and keep the beans spread out in a dry, cool place in a thin layer. A grower may send the best of seed, and yet if it is kept in the sacks until planting time it will usually heat sufficiently to destroy its growing powers.

Satisfactory results are reported in feeding soy beans to horses, mules, dairy cows, young stock, sheep, lambs, hogs, and poultry. Many farmers report that they have never fed anything equal to it, a few write that their stock could not be induced to eat either beans or hay.

The season was the most unfavorable for growing soy beans but one that we have had in 12 years. The crop was a new one to most of the farmers raising it and many mistakes were made. Good results were secured in this poor season and with a new crop by a majority of the farmers who reported, indicating that in an ordinary year most Kansas stock raisers will find this crop profitable. We believe it will pay nearly every farmer in the State to plant 5 to 10 acres of soy beans in 1901, and many farmers report that they will plant much larger areas.

The reports in detail as made by 276 farmers will be given in a large bulletin now in press.

H. M. COTTRELL.

We are receiving daily many letters asking where seed may be obtained, and the price. We have no seed for sale. To save correspondence we give a list of growers who have reported having soy beans for sale. Judging from our correspondence, we expect the price of seed to be about $1.50 a bushel. One bushel will plant two acres. We know nothing of the quality of any of the seed offered.

Name.	*Post-office.*	*Bushels for sale.*
Joe P. Sterbing	Arkansas City	100
Wm. T. Baird	Arkansas City	140
S. Goldsmith	Acme	20
J. H. Winkley	Aulne	20
E. E. Chronister	Abilene	50
William Matthias	Atchison	60
G. W. Warren	Bushong	18
H. J. Shuttz	Belleville	4
W. D. Wheat	Broderick	20
S. M. Z. Long	Brooks	55
W. H. Howell	Beverly	4
R. S. Montgomery	Carbondale	10
A. H. Diehl	Chapman	25
S. Ericson	Clyde	6
J. W. Kelley	Centropolis	10
F. B. Morlan	Courtland	30
C. E. Gray	Crestline	20
O. A. Rhoads	Columbus	15
F. M. Norton	Carbondale	150
R. C. Johnston	Cottonwood Falls	10
H. B. Schlafman	Coffeyville	60
Marion Smith	Dwight	20
G. W. Parkman	Emporia	10
C. C. Burns	Edgerton	25
M. L. Dickson	Edgerton	60
J. B. Dickson	Edgerton	75
Geo. Anderson	Everest	15
C. J. Hafey	Eureka	200
Enos Reed	Eudora	12
Alfred Wuensch	Eudora	5
Marion Smith	Fredonia	15
H. E. Bachelder	Fredonia	20
T. T. Perry	Girard	25
C. A. Holzer	Girard	10
F. W. Muench	Gypsum	7
J. A. Showalter	Halstead	7
J. H. Laughlin	Kincaid	10
M. J. Whitaker	Louisburg	90
Jas. E. Farris	La Harpe	30
Geo. Culbertson	Long Island	40
R. Nodruft	Lyon	100
C. A. Streeter	Milford	45
H. W. Savage	Mound Valley	10
J. W. Gleason	Monticello	50
D. A. Jones	Montana, Labette county	35
Franklin Adams	Mapel Hill	200
J. C Strong	Moran	40
Alex Martin	Manchester	16
J. A. Nelson	Michigan Valley	20
J. K. Walker	North Topeka	20
Peter Moyer	North Topeka	15
A. E. S. Danner	Newton	8
F. H. Stannard	Ottawa	85
Joe. P. Sterbenz	Olpe	10
W. H. Strausbaugh	Osawatomie	7
C. P. Shelton	Paola	30
J. C. Bolton	Paxico	50
Garth McMillen	Piedmont	5
W. A. Boys	Richter	60
J. A. Schriner	Rhinehart	27
J. F. Hood	Riverdale	10
C. I. Flemming	Richter	50
W. W. Warren	Richter	50
G. E. Hallister	Sabetha	30
J. P. Porter	Scandia	6
L. C. West	Spring Hill	10
C. C. Cochran	Selma	20
W. E. Bruce	Sabetha	15
W. J. Carson	Topeka	10
M. C. Haywood	Tecumseh	45
Henry G. Mosher	Topeka	10
W. D. Wittmer	Topeka	20
Ben. Kessler	Topeka, R. D. R. No. 5	100
Grant Dairymaple	Verdi	20
C. C. Waters	Wellsville	20
J. J. Achenback	Washington	100
Elmer Dodson	Wakefield	10
A. M. Dull	Washington	15

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☆ ☆

Editor-in-Chief, - - *Pres. E. R. Nichols*
Local Editor, - - *Prof. J. D. Walters*
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THE INDUSTRIALIST.

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STEAM.

IN OUR pursuit of information from articles written on steam-engine tests, and especially on steam-boiler tests of to-day, we are destined to meet many times with the term "dry saturated steam," and to those unaccustomed to it, this seems very awkward. It has, however, a much more definite meaning when we come to investigate the action of steam under different conditions.

It has long been known that for every pressure of steam in the presence of its liquid, there is a definite corresponding temperature. It was this property of steam which enabled Regnault, many years ago, to establish a table of temperatures to correspond to the different pressures, which table is extensively used by engineers throughout the civilized world to the present day.

If, however, the steam be piped a short distance from the generator it may be readily heated, by external heat or by throttling, to a temperature greater than that found in the tables corresponding to that pressure. This is what is known as superheated steam, and it may be readily detected by simply observing the temperature by a suitable thermometer and the pressure, and then referring to the tables. It is, however, a much more difficult thing to determine how much water is being carried in suspension or in the form of mist, by the steam, thus causing the steam to be designated as "wet steam." This latter determination received much attention for a number of years and may be said to have been put on a firm basis only within the last two or three years.

In measuring the performance of boilers it is essential to know the quality of the steam there generated, for upon this depends largely the efficiency of the boiler. If the boiler be given credit for the weight of the mixture of the water and steam which passes into the steam-pipe, the efficiency would in many cases be exceedingly high, while the engine supplied by such a boiler would show a very low efficiency.

Let us suppose that a boiler is generating steam at 200 pounds

pressure, absolute, or 185.3 pounds by the gauge, and that the steam is dry and saturated; that is, no water is carried in suspension and the temperature is that given in the steam tables corresponding to this pressure. Then if the temperature of the feed water be 60° F., for each pound of feed water the boiler is to be credited with 326.6 British Thermal Units (B. T. U.), due to heating the liquid and 843.8 B. T. U. due to vaporization, making a total of 1170.4 B. T. U. If, however, 10 per cent of the weight passing into the steam-pipe be water mechanically mixed with 90 per cent of steam, then for each pound of feed water the boiler should be credited with 326.6 B. T. U. due to heating the liquid and $.9 \times 843.8 = 759.4$ B. T. U. due to vaporization, or a total of 1086 B. T. U.

Again let us suppose that instead of the steam being either wet or dry and saturated, the boiler superheats it 30°. Then we have 326.6 B. T. U., due to the heat of the liquid, 843.8 B. T. U., due to vaporization, and $.48 \times 30 = 14.4$ B. T. U., due to superheating, making a total of 1184.8 B. T. U. for each pound of feed water.

Unless, therefore, we take into account the quality of the steam, the boiler delivering steam carrying 10 per cent of water has the advantage of the boiler delivering dry saturated steam by 8 per cent, and of the boiler delivering steam superheated 30° by 9 per cent. Thus arises the necessity of determining to what extent the steam generated by a boiler differs from "dry saturated steam."

In the many experiments upon the subject the greatest trouble has arisen from a lack of a correct method of obtaining the sample of steam to be tested. Various nozzles have been experimented with and various positions aud directions of pipe have been suggested from which to take the sample, most of which vary widely from the true result.

Professor Carpenter, of Cornell University, took up the work and after some extensive experiments discovered that if a perforated nozzle with a cap on the end be inserted into a vertical pipe so as to extend nearly across the pipe, a good average sample of steam could be collected, and this method was recommended by the American Society of Mechanical Engineers. Many forms of calorimeter have been devised for the purpose of determining the quality of steam, but the two that are most strongly recommended are the throttling and the separating.

Professor Carpenter describes the following chemical method of testing the quality of steam: "Add a little common salt, say

three or four ounces, to the water in the boiler, it having been previously found that dry steam would not absorb any of the salt; if a given weight of steam be condensed and found to contain salt, it is due to the water mechanically entrained. The proportion which this salt in a given weight of condensed steam bears to that in a given weight of water drawn from the boiler is the percentage of moisture in the steam. The method of analysis is a volumetric one and is very accurate and rapid." The throttling calorimeter is most convenient in operation and gives excellent results when the percentage of moisture is low, while the separating calorimeter is equally well adapted to any percentage of moisture.

A separating calorimeter was constructed in the College shop for use in a boiler test made by the senior class last year and was again used in a similar test this year. This apparatus consists of two chambers made by inserting a two-inch pipe eleven inches long and closed at the lower end into a four-inch pipe about thirteen inches long and closed at both ends. The steam is admitted by a one-half inch pipe passing through the outer cap and extending about one and one-half inches through an inner cap, which is held about one-eighth inch above the upper end of the inner tube. The lower end of the one-half inch pipe is perforated with small holes and plugged at the bottom so that the steam passing through these holes is separated from the water which collects in the inner chamber while the steam passes off between the upper end of the tube and the cap and enters the outer chamber which is connected by a small pipe in its lower end to the condensing can. The inner tube is connected to a gauge glass, on the outside, which is provided with a scale graduated to read ounces. The percentage of water is gotten by dividing one hundred times the difference in the readings of the glass gauge by the sum of the readings of the glass gauge and condensing can.

While the apparatus does not give absolutely accurate results, owing to the tendency of the steam to condense on the surfaces and run down in gushes, it is believed to give a fair approximation and serves well to illustrate the principle of the separating calori meter. Our old boilers show a comparatively large percentage of moisture passing into the steam-pipe. This we naturally expect, owing to the absence of steam domes. It is believed that were a test made on the new boiler the steam would be found much dryer.

W. M. SAWDON.

THE SOCIAL SETTLEMENT IDEA.

THE condition of the ignorant and vicious undercrust of modern society has become at once the most vital and most fascinating problem of our great cities. There are immense tracts of Chicago that are so vile, so vicious and so obnoxious, that the person who values his life, his limbs and his loose change instinctively shuns them. The alarming sanitary conditions existing in these portions of the city, and the gulf that was rapidly growing wider and wider between the wretched poor and the luxurious rich, led earnest and philanthropic people, a few years ago, to undertake some plan to ameliorate existing conditions. The idea of the social settlement which has become so popular with certain classes of late years that it threatens to become a fad is the establishment of a pure, simple, friendly and eminently practical center of social activity in the very heart of the vicious and filthy portions of the city for the purpose of gradually elevating the moral and civic tone of the unfortunate masses who are herded together there. As the poorer people are frequently altogether out of sympathy with the church, and more or less suspicious of every reform movement, the good people who seek to reach them make no mention whatever of sect or religion, but endeavor to insinuate themselves into the good graces of their lowly neighbors by material benefits and friendly efforts to help them amuse themselves and by offers of assistance in manual training and elementary education.

Hull House, the best known and the most interesting settlement in Chicago—perhaps we may say in America—is presided over by Miss Jane Addams, a most wonderful and interesting character. It is an old-fashioned family residence to which modern improvements have been added, and is situated on the very edge of the most ignorant and poverty-stricken region in Chicago. Its activities cover the Ghetto section, where Russian Jews, Poles, Italians, Bohemians and Irish swarm. The charter states that the object is "To provide a center for a higher civic and social life; to institute and maintain educational and philanthropic enterprises, and to investigate and improve the conditions in the industrial districts of Chicago." The resident workers, who are all people of character and culture, and some of them wealthy, room and board in the house. Admission is gained by virtue of fitness for the work or through special influence, and there are always

more applicants than can be accommodated. As to the activities of the settlement, they are almost numberless. Thirty or forty clubs of every kind and description meet evenings in the pleasant club rooms. No fee is demanded and the clubs have no expense except the gas bill. The chief employment of those who gather there is usually some very light form of amusement, although there are some societies for debate, discussion, and mutual improvement. The Kindergarten Training School of the Chicago Frœbel Association has its headquarters in the Children's House at the settlement. This association endeavors to assist in the unification of the educational and sociological problems of the city. It has a training class where those who desire a first-class training in the work may receive instruction and at the same time have an opportunity to study the value of Frœbel's ideas in relation to the growing minds of older children.

One of the most interesting things in connection with Hull House is the *creche*, where from twenty-five to fifty little tots, children of the poor, hard-working people, are cared for at an expense of about five cents a day, while the mothers are out performing their day's work. There is also a Penny Provident Bank for the children. The depositors receive cards upon which they paste stamps showing the amount of their deposit. These cards they retain, being able at their option to recover the amount of money represented by the stamps. In the children's house is a carpenter shop, with a competent instructor in charge, where a boy can employ his spare moments and at the same time learn a useful trade. A collection of one hundred pictures has its home in the drawing-rooms of Hull House, and these framed photographs and water colors are loaned to the neighbors, to remain not more than two weeks in one home. In this way correct taste is imperceptibly instilled into the minds of people who have no other opportunities to enjoy the beautiful. Free lectures, concerts and entertainments are also provided for the community; a visiting nurse from the Chicago Visiting Nurse's Association makes her headquarters at Hull House and calls upon such as desire her services; and many other activities have their source in this remarkable center.

There are other social settlements in Chicago, almost if not quite as interesting and useful as the one just sketched. On the west side is "The Commons," presided over by the well-known scholar and philanthropist, Graham Taylor, the settlement known as "The Forward Movement," and the "University Settlement."

HARRIET HOWELL.

THE INDUSTRIALIST.

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PRES. E. R. NICHOLS.....Editor-in-Chief
PROF. J. D. WALTERS.....Local Editor
PROF. J. T. WILLARD.....Alumni Editor

LOCAL NOTES.

The Board of Regents will meet April 3.

Mr. Baxter's tulip beds are beginning to show some life.

The old track in the boiler room is being taken up and replaced by a new one.

Regent R. J. Brock was a welcome visitor at the College last Tuesday morning.

The Mechanical Department is repairing the old electric-light engine of the city plant.

Professor Goodell is moving into the Mendell home, on the southeast corner of Fifth and Houston streets.

Prof. J. T. Willard was absent from College in the interest of the College Experiment Station the whole of last week.

President Nichols left Monday noon for Berea, Ky., to attend the funeral of ex-Pres. G. T. Fairchild. He returned on Friday.

The Veterinary barn has been moved from its old moorings behind the Agricultural building to new anchorings behind the Armory.

Mr. C. D. Reynolds will assist in the Engineering Department this spring term. He will teach the class in principles of mechanism.

The carpenter-shop is rebuilding a farm wagon and a spring wagon. The work is being done mostly by short-course students and apprentices.

Several of the seniors and a number of agricultural students have requested special instruction in boiler and engine work for spring term industrial.

Last Thursday, Instructor Sawdon took the senior class in mechanical engineering on a tour of inspection through the new city electric light works and the Manhattan mills.

Sixty-one dairy school boys accepted the invitation of the Continental Creamery Company and visited the new factory at Topeka. At this factory the cream will be churned from over two hundred stations.

The College is fortunate in having an extra supply of coal on hand, as no shipment has been made from the State penitentiary mines for over a week.

Some of the dairy students who went to Topeka Saturday to visit the Continental Creamery experienced the joy of a personal encounter with Mrs. Carrie Nation, in her battle array.

The cupola of the foundry is undergoing repairs, but it is intended to have it ready for business in about a week. Assistant Sawdon expects a large class in foundry work in the spring term.

The State Board of Education at their March session granted Prof. W. A. McKeever a teacher's diploma and a conductor's certificate—two handsome acknowledgments of his growth and work.

C. A. Scott, of the senior class, has accepted a good position with the Division of Forestry, U. S. Department of Agriculture, and will begin work July 1. The offer comes through recommendations from the Farm Department.

The Farm Department has changed its plan of field work and for the next four or five years will use the College fields chiefly in tests of grasses and legumes. The work of seeding and planting has begun by putting in ten acres of Canada field peas and oats.

Prof. Herbert Roberts, M. Sc., of St. Louis, was elected last week to the chair of botany recently vacated by Professor Hitchcock. He arrived here last Saturday and will begin work with the opening of the spring term. His curriculum *vitæ* will be published in the next INDUSTRIALIST.

Thursday and Friday representatives of the Continental Creamery Company were here trying to engage thirty men from our dairy school. Only sixteen men were available. The Parsons Co-operative Creamery and the Overbrook Creamery also had representatives here to engage men from the dairy school.

E. B. Patten left Tuesday for Compton, Cal., to take up work on a large dairy farm. The proprietor of the farm writes the Farm Department that Mr. Keyes, who attended our dairy school last year, had worked for him during the past year and the work was so satisfactory that more Kansas dairy school boys were wanted.

NOTICE.—Each student is entitled to THE INDUSTRIALIST, free, as long as in College, mailed at the College or to any address designated. Order blanks may be had at the post-office window, which should be filled out plainly and signed by the student. The blank should be filled out at the beginning of each term, not later than six days from the first day, and blanks filled out after that time will be too late to go on the mailing list. Changes cannot be made during the term. The order filled out will be good for one term only.

Fielding & Son, Manhattan, shipped Thursday to J. G. Haney, Chihuahua, Mexico, four hundred bushels of seed of drought-resisting plants. Former Assistant Haney writes that he thinks the country very favorable for the production of crops similar to those grown in Kansas and that he is meeting with the hearty co-operation of Mexican ranchmen. Part of his field work will be conducted on a ranch of four hundred thousand acres.

The library has lately received a large number of new books, which are now being catalogued. Among the new arrivals we note ten volumes of the Century Series, eight volumes of Putnam's Scientific Series, two volumes of Herbert Tuttle's History of Russia, two volumes of Perkin's History of France under Michelie and Mazarin, seven volumes of Zeitschrift für Analytische Chemie, two volumes of White's History of the Warfare of Science with Theology, one volume by Henry Sun in William's Story of the XIX Century Sciences, William's Manual of Lythology.

Some time ago Sec. F. D. Coburn, of the State Board of Agriculture, wrote to Prof. H. M. Cottrell that he would send a copy of his last biennial report to every student of the Agricultural Department who would write for it, and that he would send especially bound copies, with the names of the applicants stamped on the cover, to the two students writing the best letters. The result of the contest was published three weeks ago in the INDUSTRIALIST, but in this issue we are able to reproduce the two successful letters printed from photo-zinc plates. They appear here by the kindness of Prof. E. B. Cowgill, of the *Kansas Farmer*, and speak for themselves.

The agricultural institute on Friday afternoon and evening, March 22, was a success in every particular. In the afternoon, Mr. W. F. Jensen, of Topeka, and Mr. T. A. Borman, editor of the *Dairy Age*, addressed about one hundred forty students in the auditorium of the Agricultural Hall, on dairy subjects. For the evening, the following program had been arranged by the sophomore dairy class:

Overture ..... Orchestra
Introduction of Program ..... W. L. English
Wanted, a Good Dairy Cow ..... H. R. Thatcher
Menu for Kansas Dairy Cows ..... R. N. Dorman
Music ..... Sophomore Quartet
Butter Fat in Milk ..... T. W. Buell
Raising Calves ..... E. P. Goodyear
The Deacon's Calf ..... Quartet
Profits from Creamery and Cheese Factories ..... R. B. Felton
Music ..... College Mandolin Club
Private Dairying ..... Miss Elanor White
Vocal Solo ..... Mrs. D. H. Otis
Address ..... Hon. F. D. Coburn
Piano Solo ..... Miss Edna W. Grothe

Mr. F. D. Coburn spoke on the art of letter-writing—how to do it and how not to do it. He spoke for about an hour in his well-known characteristic style, giving the young men present a capital lesson in the rhetoric of the business letter.

Pres. E. R. Nichols returned Friday night from Berea, Ky., where he attended the funeral of ex-President George T. Fairchild. He reports the presence of many prominent educators, old friends and ex-students of the Agricultural College. Among those present he noticed Mrs. G. T. Fairchild, Mrs. Alice Kirshner, Mrs. Anna White, Dr. Paul Fairchild, Dr. Ed. Fairchild, Mrs. Nellie Kedzie, Professor and Mrs. Mason, the Misses Grace and Tacy Stokes, Professor Jones, and Miss Grace Clark. After a short service at the family residence, attended by the members of the family and their friends, the remains were taken to the College chapel, where the public funeral exercises were held. Pres. W. G. Frost, of Berea College, gave a biographical sketch of the departed, Prof. S. C. Mason spoke of Fairchild from the standpoint of the student, and Pres. E. R. Nichols spoke of the ex-President's work in the Kansas State Agricultural College.

IN MEMORY OF EX-PRESIDENT FAIRCHILD.

Exercises in memory of Dr. George Thompson Fairchild, whose death at Columbus, Ohio, was announced in the last number of the INDUSTRIALIST, were held in the College chapel on the morning of March 20, the day of the ex-President's burial at Berea, Ky. After the usual chapel services, Professor J. D. Walters read a biographical sketch of President Fairchild. He spoke of the work of the departed at the Michigan Agricultural College, at the Kansas State Agricultural College, in the National Educational Association, and in the Association of American Agricultural Colleges. He reviewed Fairchild's educational maxims and presented in a short character sketch some of the reasons of Fairchild's recognized success as an educator. Professor Lockwood followed with an impressive address on "The Influence of Character in the Life Work of the Educator," in which he pointed out that the basis of the work and success of all great college men consists in their grand and noble character and in the unflinching determination to be true to their conviction and calling. To make a lasting impression on the young and receptive mind, the educator must think nobly and act unselfishly. Prof. A. B. Brown then read the memorial resolutions passed by the Faculty, and Student L. A. Fitz those passed by the students. The resolutions read are as follows:

RESOLUTIONS BY THE FACULTY.

WHEREAS, Death has called from a busy life our friend, teacher and collaborator, Dr. George Thompson Fairchild, ex-President of the board of instruction of the Kansas State Agricultural College, and

WHEREAS, He gave the best period of his life to the establishment, development and growth of this institution, and to the mental and moral uplifting of American manhood and womanhood, and

WHEREAS, We recognize in him the practical founder of the Agricultural College in its present educational relation to the youth of the State, and

WHEREAS, The influence of his educational ideals will be permanently impressed upon the spirit of the institution; therefore, be it

Resolved, That we shall always cherish in our hearts a warm remembrance of his grand character and exemplary Christian life, and that we extend our heartfelt sympathies to the bereaved wife and children; and be it further

Resolved, That these resolutions be spread upon the records of the Faculty and a copy be sent to the bereaved family.

J. D. WALTERS,
A. B. BROWN,
E. A. POPENOE,
Committee.

RESOLUTIONS BY THE STUDENTS.

WHEREAS, God in his infinite wisdom has summoned to enter the great Beyond, George T. Fairchild, former President of our College, and

WHEREAS, We feel that he devoted the best years of his life to the upbuilding of this institution; therefore, be it

Resolved, That we, the students of the Kansas Agricultural College, unite in this expression of our sorrow at the loss and appreciation of the worth of one whose regard for his fellow man prompted him to an unselfish labor of love at this College; of one whose life exemplified his maxim, "Trifles make perfection, and perfection is no trifle," and won for him not only the respect and admiration but the love of all. His simplicity of life and steadfastness of faith, his purity of character and loftiness of purpose inspired us to strive to live more like the Master he so humbly followed.

We extend our heartfelt sympathy to the bereaved family in their loss of so devoted a husband and father. Be it further

Resolved, That these resolutions be published in the *Student's Herald* and that a copy of them be sent to the bereaved family.

LESLIE A. FITZ,
MYRTLE MATHER,
GEO. MARTINSON,
MARGARET J. MINIS,
HARRY C. TURNER,
Committee.

Professor Lockwood has engaged Dr. Charles G. Dunlap, head professor of English literature in the Kansas State University, to deliver a series of four lectures on "The Modern Novel" before his senior classes in English literature. As Professor Lockwood assumes all financial responsibility in connection with the course, and as it is offered free to the members of his classes in literature, he bespeaks the cordial support of the citizens of Manhattan. Dr. Dunlap's position in the State University and his reputation as a finished scholar and fascinating teacher render it unnecessary to say anything concerning his ability and charm as a lecturer in his chosen field of study. While the course is provided primarily for those who are students of literature, the popular nature of the subject-matter as well as the versatility of the lecturer make it certain that it will—as was the case with the course delivered by Dr. Coe last spring—commend itself to all thoughtful and intelligent people. Indeed, one chief aim that Professor Lockwood has kept in mind in arranging for these lectures is the popularization of standard literature and the cultivation of taste. The lectures will be delivered at the Congregational church on the evenings of April 5, 6, 12, and 13, at 8 o'clock. The price of course tickets is sixty cents to citizens, fifty cents to students. The tickets will not be transferable. There will be no reserved seats, but in order that all may be comfortably provided for, only three hundred tickets will be placed on sale. For further particulars inquire of Mr. H. T. York, who will have charge of all details.

Manhattan, Kans.
Feb. 4, 1901.

Hon. T. D. Coburn,
Sec. State Board of Agriculture.

Dear Sir—:

I am a student of the Kansas State Agricultural College, and as I mean to make agriculture my future business, I shall be greatly pleased if you will send me a copy of the Twelfth Biennial Report of the State Board of Agriculture.

Very Truly Yours,
S. V. Smith.

Manhattan, Kans.
Jan. 30. 1901.

Hon. F. D. Coburn.
Secy State Board of Agri.,
Topeka, Kansas

Dear Sir:—

Will you please send me a copy of the "Twelfth Biennial Report" of the State Board of Agriculture.

I am now attending the Agricultural College and expect to be engaged in agriculture after completing the course.

Yours Respectfully
W. H. Powell.

ROOTS FOR KANSAS FARMERS.

(Press Bulletin No. 85, from Farm Department.)

A horse, a cow or a sheep will thrive and do well on good pasture alone. Cut this grass, carefully cure it and feed the animal on hay alone. It will lose its appetite in a few weeks, become thinner and it will not have a thrifty appearance. The hay is a dry feed, the grass a succulent feed. If the best results are to be secured from feeding in winter some succulent feed should be provided to take the place of the green feed of summer.

The cheapest and most convenient way of providing succulent feed is by corn silage. The next best way is with roots, and when a farmer does not have a silo he should raise roots. We recommend the growing by Kansas farmers of Mangel Wurzels as the root crop best adapted to Kansas conditions. Sugar-beets are worth more, pound for pound, as feed, but the greater yield of the mangel overbalances this. The mangel is a coarse stock beet.

Mangels need a good rich soil. Creek or river bottom is good, and the writer has seen 1200 bushels per acre grown in a small, rich ravine on an upland farm. On most farms there is some rich, moist spot that is suitable for mangels. The ground should be prepared just as for a garden, deeply plowed and thoroughly pulverized just before planting.

Plant Ten Days Before You Plant Corn. This is very important. A later planting often results in a total failure of the seed to grow. The mangel grows fairly well in dry weather after it gets started, but the seed will not germinate unless the soil is thoroughly moist.

The seed should be planted in rows 30 inches apart, dropping the seed about as thickly in the row as for garden beets. At the Kansas Experiment Station we have found it most convenient to plant with a two-horse grain drill having press wheels. We stop up all the holes in the drill but those from which we want seed to drop. About six pounds of good seed are required for an acre. Test the seed before planting, as much of it on the market is poor. Last spring we bought seed of two varieties of a leading seedsman; only 10 per cent of one variety grew while the seed of the other sort was all right.

The Long Red Mangel yields the most but it is not a good keeper. We plant it for feeding up to New Years. The Golden Tankard, if properly handled, will keep until June, and we plant this variety to furnish the supply of roots needed from New-year until spring.

Cultivate as for corn. We use a two-horse spring-tooth cultivator, taking off the outside shovels. After the first cultivation, thin with a hoe to one plant every six inches in the row.

Mangels are a valuable feed to give brood sows during the winter. Fed in connection with grain they keep the animals healthy, the hair glossy and the system cool. Fattening hogs like them as a change from corn and they keep the appetite up well. It is difficult to maintain a full yield of milk in winter without succulent feed, and mangels supply this to the dairy cow in a palatable form. Mangels help push the calves along through the winter

H. M. COTTRELL.

Plant an acre this spring.

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Local Editor, - - *Prof. J. D. Walters*
Alumni and Former Students, *Prof. J. T. Willard*

☆ ☆ ☆

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THE INDUSTRIALIST.

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THE GUARDIAN OF THE CONSTITUTION.

AMERICANS are justly proud of that institution, peculiar to the United States, which is sometimes indifferently styled the United States supreme court or the "guardian of the constitution." It is not the purpose of this article to detract in the least, if that were possible, from the luster that gathers about that justly venerated body of legal wisdom—the peer, no doubt, of any similar body in the world. But there are certain popular notions about the real place the supreme court occupies in our system, about the responsibilities it really assumes, which ought to be corrected. For instance, when there is any question raised about the constitutionality of any really popular measure before Congress, the cry is immediately heard, "Pass the bill, and if it is unconstitutional the supreme court will declare it void."

It would be very poor policy, of course, to consume time and energy in getting through a bill which in all probability would be immediately declared unconstitutional. But what are the probabilities that the supreme court will disallow an act of the federal legislature when once it is passed? Does the demand just referred to spring from a feeling, justified in a measure by the course of things, that after all the chief thing is to get the law passed, after which the chances are it will never be successfully questioned? Let us first see what has been the record of the supreme court by way of disallowing acts of Congress, properly passed and duly signed by the President. How many such laws have been declared unconstitutional by the supreme court? In four notable instances only. The first of these cases was that of Nearbury *vs.* Madison, decided in 1803, in which an act of Congress enlarging the original jurisdiction of the supreme court was declared void. Then follows a long period of silence, broken at last in 1866 by the decision in the *ex parte* Milligan case. This was followed a few years later by the decision in the "legal-tender cases," and finally that on the recent income-tax law. Such a list

for a court already more than a century old is certainly not formidable. Its very brevity is enough perhaps to justify the feeling already alluded to, that the chief thing is to get Congress to pass the bill, without much regard to its constitutionality, leaving that for the courts to settle.

But why have so few acts of the "coördinate branch of government" been disallowed? Does our Congress always proceed with such great circumspection in the exercise of its powers as almost never to overstep the bounds set for it by the constitution? Or is our supreme court derilect in its duty as the "guardian of the constitution?" Certainly neither view should be accepted unqualifiedly. Though Congress many times spends as much or more time debating the constitutionality of a measure as it spends on the substance of the bill, still it is not a body of trained lawyers simply. Certainly its legal ability will not compare for a moment with that of the supreme court. The atmosphere in which it formulates the laws is not calculated to stimulate cool, dispassionate reasoning on abstract questions of constitutional law. It is reasonable to suppose, therefore, after crediting Congress with the best intentions, that occasionally—surely more than four times during the past century—it has overstepped the boundary line marked out for it by the constitution. On the other hand, what has just been said of the place which the supreme court justly occupies in the estimation of the world would make it superfluous to add now that there is no thought here of charging that great body of jurists with being actuated by a spirit of supineness toward Congress. Indeed, why should they be thus actuated? Their positions and salaries are secured to them for life, whether their decisions please Congress or not. How, then, explain the record, which we have just been examining, perhaps with no little surprise?

It would be beyond the purpose of this article to undertake an elaborate discussion of this question. In fact, such a discussion would hardly be desired in this connection. But a few hints might profitably be thrown out that it would be worth our while to reflect upon. First, it is suggested that the constitutionality of no law can be questioned before the courts except there be an actual controversy involving the law and raising the question of its validity. This means that some party feels himself sufficiently aggrieved by the law to make it worth his while to contest its va-

lidity before the courts. Furthermore, it means that said individual finds himself in somewhat more than moderate circumstances, financially speaking. Decisions from the supreme court are not articles of diet which any man may, at pleasure, write down on his bill of fare. They are luxuries for the few who have a good sized balance on the right side of their bank accounts. Hence it may happen that a law that is really unconstitutional may never be questioned in court; those on whom it rests most heavily preferring to endure its hardships rather than go to the trouble and incur the expense of carrying the case to the United States supreme court.

On the other hand, some laws are finally brought before the supreme court, but only after they have been in force many years. What difference does this make? Will not such a law be declared unconstitutional as quickly as the law that has only just been passed and never really enforced? Apparently there is, or may be, a wide difference in the treatment accorded two such laws as above indicated. The very fact of continued submission and general and unquestioned obedience to a law for a period of years cannot help influencing a court, which is after all composed of human beings, made of very much the same sort of stuff as ourselves. This much might be said for almost any law. But suppose, now, the law in question is one of great moment to society, particularly one affecting property rights. Suppose it is a law in accordance with which business transactions have been carried on for a number of years, so that any sudden disturbance of the law, supposedly valid, would materially disturb the commercial interests of the country, bringing with it great injustice to many and perhaps commercial ruin to not a few. Will these considerations have weight with the court? Will they go toward sustaining a law that might otherwise have been declared unconstitutional? If any one thinks that such questions never weigh seriously with the supreme court, that only the question of pure law is taken into account by that body in reaching its decisions, let him read the opening remarks of Justice Strong in his delivery of the opinion of the supreme court in the "legal-tender cases" decided in 1871. "The debts which have been contracted since February 25, 1862, constitute," says the court, "by far the greatest portion of the existing indebtedness of the country. They have been contracted in view of the acts of Congress declaring

treasury notes legal tender, and in reliance upon that declaration. . . . If, now, by our decision, it be established that these debts and obligations can be discharged only by gold coin; if, contrary to the expectation of all parties to these contracts, legal-tender notes are rendered unavailable, the government has become an instrument of grossest injustice; all debtors are loaded with an obligation it was never contemplated they should assume; a large percentage is added to every debt, and such must become the demand for gold to satisfy contracts that ruinous sacrifices, general distress and bankruptcy may be expected."

What has this to do with the constitutionality of the law? Not much, however much it has to do with equity. But with equity the supreme court in this case, strictly speaking, had nothing to do. It was a question of the power of Congress to pass a certain act. The court answers by pointing out the injustice that must arise in case the law is not allowed to stand. It may have been wise to rule just as the court did. That is not the question here. But was the question decided wholly upon constitutional grounds? Was the court influenced by other considerations than those of pure law? Undoubtedly it was; and if it was in this case, the presumption is it would be similarly influenced in a similar case. Doubtless, too, this fact has tended somewhat to keep down the number of acts of Congress that have been declared invalid, though it might not be so easy to prove the existence and force of such an influence in other cases as in the one just cited.

Again, there are certain powers, if exercised by Congress, which the courts will never pass upon, even should an attempt be made to bring the case before them. Such cases are ruled out as "political questions." By this we should not understand that they are questions that should be settled solely in the political arena. But the meaning is that the cases involve certain powers, the exercise of which was intentionally left to the discretion of Congress. Such, for instance, would be the case of a member of Congress unjustly expelled from that body, or unjustly refused a seat. "The United States shall guarantee to every state in this Union a republican form of government," says the Constitution. Who may say what constitutes the essentials of a republican form of government? Clearly it is intended to leave this matter to the discretion of Congress. The courts would never undertake to pass upon such a question. There are therefore quite a number

of powers that may be exercised by Congress without fear of being called to account by the courts, because they involve "political questions." And many of these powers are quite important.

Nor can the influence of office be altogether ignored. It is natural for an officer to magnify the powers of that portion of the government with which he is intimately associated. Increase the powers of the federal government and you thereby enhance the powers of the federal courts. An illustration of the influence of office on the opinions of the man might be found possibly in the case of Chief Justice Taney. Taney, as an attorney in the case of Brown *vs.* Maryland, argued one way respecting the powers of the general government, and as a judge of the supreme court some years later took quite as decided grounds on the other side of the question. This is not surprising in itself. But in the "license cases" Chief Justice Taney takes occasion to remark that he firmly believed in the correctness of his position, aside from the particular question then under discussion. To quote his words: "I at that time persuaded myself that I was right, and thought the decision of the court restricted the powers of the state more than a sound construction of the Constitution of the United States would warrant." But further and more mature reflection has convinced him of his mistake in the former case. In the meantime he has been several years on the federal bench. Whether there was any connection between this fact and his altered opinion each one will have his own view.

There are many other considerations that might go toward accounting for the small number of cases in which the supreme court has withstood the "co-ordinate branch of government." But the mere mention of one or two others must suffice for the time. A law once passed by Congress is assumed to be constitutional until proved otherwise. As the supreme court itself declared in the case of Hepburn *vs.* Griswold, speaking of the rules governing that body in passing upon the acts of Congress: "Its constant rule of decision has been, and is, that acts of Congress must be regarded as constitutional unless clearly shown to be otherwise." It might have seemed to the mind of a layman that, in a government of "enumerated powers" precisely the opposite attitude should have been assumed. But the superior wisdom of the supreme court has determined otherwise, and who can doubt that this fact has helped to sustain more than one law of doubtful con-

stitutionality; just as the rule that a man is presumed innocent until proved guilty has undoubtedly helped to free many a criminal. It may be wise, or the contrary. As to that, it is not our present purpose to inquire.

Before leaving the subject, after this very brief and prehaps unsatisfactory sketch, it might be worth while to note one or two other considerations that would seem, in theory at least, to mar the beauty of the supreme court as "the guardian of the constitution;" that is, that tend to destroy its efficiency in this capacity. In the first place, the supreme court—and the same is true of all courts—has no machinery of its own for enforcing its decisions. It must depend upon the executive for carrying out its decrees. Suppose the executive does not approve of the decision of the court, what is apt to be the result? Let President Jackson's remark about the dispute between Georgia and the Cherokee Indians be recalled just here: "John Marshall has pronounced his judgment; let him enforce it if he can." Or, suppose the decision is directed against an act of the federal executive itself; what probability is there that we should not have the case of *ex parte* Milligan over again, where the federal executive deliberately defied the orders of the court to release Mr. Milligan?

Again, what is there to prevent the Congress and President from combining at any time on an important measure before the courts to increase the number of federal judges in such a way as to insure a majority of the supreme court in favor of the policy which these two branches of government desire to see carried out? Nor have Congress and the President entirely escaped suspicion in the past in just this connection. The case has probably never been proved against them, and it is doubtful if there is much real danger from this source. Still it reveals to us the possibilities, provided Congress and President are united and dare to take the consequences at the polls.

Undoubtedly the supreme court is a very essential part of our system; we could not possibly find another satisfactory substitute for it. But let us not ask it to undertake the impossible. Above all, let us recognize the fact that the very best "guardian of the constitution" is after all an enlightened and active public sentiment, quick to respond to the demands of liberty and justice, but always seeking to realize these ends through the legally consti-

tuted organs of government, and in accordance with the principles set forth in the constitution. In short, let us not hope—for we shall be disappointed if we do—to create a system so perfect that it will run itself; or to discover anything that will serve as a substitute for an enlightened public conscience. It is as true now as centuries ago, that "eternal vigilance is the price of liberty."

C. E. GOODELL.

DOMESTIC SCIENCE AS AN ART.

THE writer had the honor recently to be an invited guest at a practical demonstration in cooking and serving at the Domestic Science Department. Professor Stoner had divided her afternoon class into three parts: one section to be the cooks, one the waiters and one the host and hostess and guests. Professor Otis and the writer were received at the reception room of the department and entertained until dinner was announced. The dining-room had been tastefully decorated with palms and ferns and the center of the table was covered with ferns and carnations. Dinner was served in five courses to eight persons. The courses consisted of the following:

MENU.

Vegetable soup. Toasted bread sticks.

Oysters (Kansas style).

Rib roast of beef, with tomato sauce.
Browned gravy. Mashed potatoes.
Creamed cabbage. Spiced pickels.
Salted almonds and peanuts.

Caramel custard, with whipped cream.
Pound cake.

Coffee with wafers (K. S. A. C. style.)

The cost of the entire meal was about $1.50, sufficient being prepared so that cooks and waiters should have enough to "sample" the dinner. The object was to demonstrate how cheaply a dinner could be prepared and at the same time be palatable and nourishing. Another object was to give the young ladies an opportunity to receive instruction in receiving, waiting on the table, cooking—in fact, to teach them to serve a first-class dinner cheaply and with ease and grace. Notes were taken by the students of all

errors made, and will be discussed in class. At the next demonstration the young ladies will exchange positions.

The dinner was first class in every respect and the young ladies did excellent work, showing the effect of their training. Stock feeders have become convinced that a balanced ration is an absolute necessity to successfully handle stock; that certain amounts of one kind of feed are necessary to certain amounts of others, and that an excess of either is a waste. Domestic science teaches the same thing as to persons, and that a palatable, well-balanced meal may be prepared at little cost. Many times there is much in the way a thing is prepared and cooked while at other times the worth of a food article may be made valueless in its preparation for the table.

The young ladies are doing excellent work and are preparing themselves to become housewives or to occupy positions of trust, because with the training they are receiving instruction in lines that will benefit them in any vocation in life. Professor Stoner has reason to feel proud of her young ladies and it is gratifying to know how thorough the work in that department is being done.

J. D. RICKMAN.

The Berea *Citizen* publishes an interesting outline of Dr. G. T. Fairchild's life, as read at the memorial exercises at Berea College by President Frost. The following half dozen sentences indicate how Berea appreciated our ex-president during the last two years of his life: "The future may show that the two years given to Kentucky were the most important of his life. He certainly gave essential service to Berea College at one of the greatest crises of all its history. Doctor Fairchild was unconscious of his superiority. We were never reminded in any way of his special experiences, or dignity, or high qualifications. My own relation to him was such as to test character. Doctor Fairchild and I had never met but once, and it is commonly believed that an old college president is an uncomfortable man to get along with. Each of us was taking a risk. But we gave each other our fullest confidence at once, and it was never disturbed for a moment."

Prof. W. A. McKeever's recent article in the INDUSTRIALIST on "Habit in Education" has been printed in tract form by the Denver School of Physiology, for distribution among their pupils.

THE INDUSTRIALIST.

Published weekly during the College year by the Printing Department of the

KANSAS STATE AGRICULTURAL COLLEGE.

Manhattan, Kansas.

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PRES. E. R. NICHOLS.....Editor-in-Chief
PROF. J. D. WALTERS.....Local Editor
PROF. J. T. WILLARD.....Alumni Editor

LOCAL NOTES.

The veterinary barn is being repaired this week.

The Horticultural Department is busy cleaning the lawns, walks, flower beds and orchards.

Miss Alice Rupp has taken rooms with Mrs. Spilman for the remainder of the school year.

Hon. Henry Watterson, the well-known orator, will lecture at the Manhattan opera-house, on April 3, on the "Life of Abraham Lincoln."

Two of the experimental calves of the Veterinary Department reacted to the blackleg tests the first of the week and were cremated.

After about twenty-five years of active service with the Experiment Station staff, "Old Bill," the Experiment Station horse, has severed his connection with the institution. He was a good horse —a very good horse!

C. C. Winsler, student and student assistant to Professor Curtis during the term of the dairy school, begins work the first of April with the Belle Springs Creamery Company, Abilene, Kan., at a salary of $45 a month.

An examination of the fields, March 28, showed that Bromus Inermis that had not been pastured last fall would make good pasture now. Fall meadow oat grass was large enough to furnish good pasture while orchard grass and English blue-grass are just starting.

E. W. Curtis, instructor in butter making, left Thursday morning for his home in Council Grove, where he operates a hand separator creamery plant. Mr. Curtis is a recognized authority in butter making, and it is through his untiring efforts that the dairy boys have been able to make a first-class quality of butter during the last twelve weeks.

With the close of the winter term and the close of two of the short courses, students to the number of over 400 left for their homes. The students are largely from the farm and the opening of spring calls for their services at home. About 35 new students have arrived to take up work during the last term. The demand for rooms and boarding accommodations is considerably relieved by the departure of so many students.

We are almost daily in receipt of letters inquiring about the experimental work that will be carried on at the prospective experiment station at Hays. To all of these parties we can simply say that the law passed by the last legislature directs that no work shall be done until the State can get a perfectly clear title to the reservation. The State attorney-general has not succeeded so far in obtaining such a title, a part of the reservation being claimed by settlers.

The Veterinary Department is very much in need of facilities for the practical teaching of veterinary science. It would be just as reasonable to expect the successful teaching of chemistry without a laboratory, or carpentry without a workshop, as veterinary science without clinics. The great need of the department is a new building. In its present quarters there is no operating room, no dissecting room and no place for keeping experimental animals. During the winter four classes were held in the museum, much to the detriment of the specimens and, owing to the impossibility of heating the place, to the discomfort of both students and instructors.

Mr. C. P. Dewey is constantly improving his Park Place dormitories. Broad, smooth, brick walks have been laid on two sides of the block, shade trees are being planted along the sidewalks, blue-grass is being seeded on the lawn spaces and several large flower beds will be planted as soon as the weather becomes more promising. Mr. Dewey is also contemplating the erection of one or two additional buildings. One of these will contain a modern gymnasium, fifty-four by twenty-two feet, two stories high, with gallery, plenty of light and plenty of ventilation. Park Place is not only a large and complete home for College students of both sexes; it is also becoming a conspicuous feature of northwest Manhattan and an ornament to the city.

Below is given the list of students in the dairy school who have accepted positions before the close of the school. The list also shows the place where the student will be located. Several of our best students had four or five good offers and were at a loss to know which to take: W. W. Alspaugh, Floral; J. E. Bumbaugh, Barclay; D. W. Dedrick, Smith Center; Bert Dull, Mungen; M. R. Eastman, Cunningham; C. A. Gage, Burlingame; J. S. Givens, Goddard; T. W. Jensen, Sioux City, Ia.; G. D. Johnson, Lowell, Mass.; Sydney Johnson, Melvern; O. O. Jnelke, Everest; O. W. Lohn, Lincoln, Neb.; Frank McIntosh, Alta Vista; M. H. Matts, Topeka; W. T. Merilatt, Oketo, O. T.; A. J. Myers, Americus; J. W. Mills, Manhattan; D. Morning, Parsons; L. F. Norton, Putnamville, Pa.; C. W. Overlander, Kipp; G. B. Parrack, Gaylord; E. B. Patten, Compton, Cal.; S. B. Pray, White City; W. H. Putnam, Merkel, Texas; W. E. Reynolds, Hallam, Neb.; H. A. Richards, Mount Hope; H. E. Richter, Mankato; J. C. Rosaker, Stafford; J. W. Smith, Herington; G. P. Stubbs, Greeley; Jess Tuttle, Carlton; F. E. Uhl, Gardner; Rosco White, Moorehead; C. C. Winsler, Salina; J. W. Woodburn, Augusta; D. P. Yoder, Souix City, Ia.

The Kansas State Agricultural College is to be congratulated that two of its representatives, Mrs. Nellie Little Dobbs, a graduate of the class of '90, and Miss Lydia Grant, assistant in drawing, are soon to bring out a book, "Æsop's Fables Arranged for Children." Propositions of a flattering kind have already been received from Crane & Co., of Topeka, for its publication. In addition to the literary charm that has been given to the book by Mrs. Dobbs' skill as a writer, its attractiveness has been greatly enhanced by more than fifty spirited pen drawings by Miss Grant. It is safe to say that no book has ever been published in this State that will vie with this one in the artistic merits of its illustrations. The book will be out in time for the holiday trade, and we predict for it a large sale.

Prof. Fredric A. Metcalf, of the State Agricultural College, gave a recital at the Christian church last Saturday night. The closing selection, the "Scenes from The Rivals," pleased the audience best. This is a humorous production that gave an opportunity for some good acting. "The Dagger Scene from Macbeth" was especially well rendered. "The Trial of Abner Barrow" was full of pathos, and if the professor excels more in one line of elocution than in another, it is probably in this style. His rendition of this selection brought tears to many eyes. "The Charcoal Man" was another selection that was particularly well rendered. The reciter has a very clear, musical voice that is well exhibited in this poem. The recital was very highly appreciated, as those of Professor Metcalf always are at Westmoreland.— *Westmoreland Recorder.*

The county high school idea grows in favor every year and ought to be adopted throughout the entire State. When every county has its high school which boys and girls of the county can attend free of tuition, then sixty per cent more of the country young people will get a high-school education. The students who seek admittance to the Agricultural College will come better prepared to do college work, and the College will be enabled to raise its requirements and strengthen its work in every department. A thorough preparation in a secondary school gives to a boy an advantage that is manifest not only in the handling of his verbs and pronouns in the rhetoric class, but in his management of machinery in the shops or live stock on the farm. The baking of a loaf of good bread calls for the exercise of every faculty of a trained mind.— *Nationalist.*

Prof. Herbert F. Roberts, of Washington University, St. Louis, who was recently elected to the chair of botany in this College, was born in Manhattan, Kan., in 1870. After graduating in the Manhattan high school in 1886, he attended the Kansas State Agricultural College for two years, going from here to the State University, where he took his bachelor's degree in 1891. Entering later upon the study of biology, he received the degree of master of science in 1898 from the Kansas State Agricultural College after two years of resident postgraduate work. Going

from here to the University of Chicago to continue in advanced work looking toward the doctor's degree, he remained there as a graduate student in botany until the fall of 1899, when he accepted the position of instructor in botany in Washington University, one of the oldest institutions for higher education in the West, and now one of the most liberally endowed. In connection with the well-equipped department of botany of the university, Professor Roberts has also had access to and has made liberal use of the unexampled opportunities in botanical lines offered by the Missouri Botanical Garden at St. Louis, with its immense library, at present the largest botanical library in the United States. Professor Roberts particularly welcomes the opportunities offered here of working along practical lines in botany, which bear on the economic interests of the State. He comes to us highly recommended—a worthy successor to Doctor Kellerman and Professor Hitchcock.

Prof. Frank Lockwood has engaged Dr. Charles G. Dunlap, head professor of English literature in the Kansas State University, to deliver a course of four lectures on "The Modern Novel" before his senior class in literature. In order to permit others to enjoy this rare treat and to popularize standard literature and the cultivation of taste, these lectures will be delivered at the Congregational church, in the evening at eight o'clock. The following is the program of subjects and dates:

April 5, lecture 1.—Jane Austen. Brief biographical sketch. Early taste for studying character. Wrote tales in childhood. Education and preparation for writing novels. Brief analysis and criticism of various novels. Her aim was to give a clear and pleasing picture of life as she knew it. General characteristics and style.

April 6, lecture 2.—Sir Walter Scott. His place in English fiction. Brief biographical sketch. Education and preparation for writing novels. Historic perspective in Scott. His scope; his deficiencies. His novels divided into three classes. Brief analysis and criticism of the more important of the novels. General characteristics of Scott. The novel of entertainment reaches its height in him.

April 12, lecture 3.—Charles Dickens. The novel at the accession of Queen Victoria. Brief biographical sketch of Dickens. Education and preparation for writing novels. The Pickwick Papers. Criticism. Oliver Twist and the humanitarian novel. Plots and episodes of Dickens; theatrical setting. Humor, pathos, fondness for caricature. Comment and criticism upon the more important of the novels. Style. General characteristics. Theory of the novel.

April 13, lecture 4.—William Makepeace Thackeray. Brief biographical sketch. Education and preparation for writing novels. His style historically explained. One of the greatest painters of manners in our literature. Comment and criticism upon the more important of the novels. Thackeray's ballads. Thackeray not a cynic. General characteristics; defects; excellence of his method.

The price of course tickets is sixty cents to citizens, fifty cents to students. The tickets will not be transferrable. There will be no reserved seats, but in order that all may be comfortably provided for, only three hundred tickets will be placed on sale. For further particulars inquire of Mr. H. T. York, who will have charge of the details.

WEATHER REPORT FOR MARCH, 1901.

Temperature.—The mean temperature was 43.19°, which is 2.68° above normal. There have been 12 warmer and 30 colder Marches in the past 43 years. The lowest temperature was 12° on the 6th, daily minima 30.84°.

Barometer.—The mean pressure for the month was 28.77 inches, which is .02 inch below the normal. The maximum was 29.36 inches at 7 A. M. on the 5th, the minimum 28.22 inches at 7 A. M. on the 24th, a monthly range of 1.14 inches.

Cloudiness.—The per cent of cloudiness was 58, which is 15 above normal. Seventeen days were cloudy, 2 partly cloudy, and 12 were clear.

The following table gives comparisons with preceding 43 Marches:

MARCH.	Number of Rains	Rain in Inches	Per cent of Cloudiness	Prevailing Wind	Mean Temperature	Maximum Temperature	Minimum Temperature	Mean Barometer	Maximum Barometer	Minimum Barometer
1858	5	2.02			47.12	82	10			
1859	6	2.88	56	SW	45.95	74	29			
1860	0	.00	26	SW NW	50.89	81	24			
1861	0	.00	24	SW	41.20	79	20			
1862	0	.00	53	NW	37.27	85	8			
1863	0	.00	26	N	45.77	86	20			
1864	5	2.12	35	NW	38.21	68	19			
1865	6	2.27			38.21	74	8			
1866										
1867	4	.63	68	N	24.58	52	−9			
1868	5	.93	48	SW	47.88	87	19			
1869	4	1.06	49	SW	35.24	72	−2	28.79	29.30	28.30
1870	5	1.45	50	NW	34.82	68	0	28.69	29.15	28.20
1871	4	1.02	45	NW	46.92	83	22			
1872	5	.92	44	SW	37.34	73	18			
1873	4	.71	44	SW	42.02	74	3			
1874	1	.30	58	NE	38.07	68	18	28.65	29.14	28.20
1875	2	1.21	44	SW	36.80	80	5	28.65	29.06	28.18
1876	6	3.96	58	NW	32.65	66	5	28.74	29.25	28.24
1877	3	2.70	67	SW NW	38.87	76	3	28.76	29.18	28.23
1878	5	1.77	49	SW NW	49.53	81	17	28.64	29.00	28.15
1879	0	.00	44	S	46.63	85	10	28.67	29.14	28.22
1880	2	.50	42	NW	41.24	80	−2	28.57	28.99	27.97
1881	1	.75	50	NW	36.20	72	13	28.54	28.91	27.80
1882	2	.80	42	SW	46.73	78	12	28.67	29.15	28.04
1883	3	1.05	49	NE SW	39.19	73	13	28.70	29.23	28.10
1884	5	2.36	57	NE	40.25	75	8	28.60	29.00	27.72
1885	3	.33	28	SW	40.34	73	15			
1886	7	2.00	52	S & NE	38.72	82	9	28.87	29.39	28.37
1887	3	.39	26	SW	42.85	83	23	28.96	29.47	28.61
1888	5	2.48	36		35.77	83	6	29.05	29.55	28.47
1889	3	1.99	32		43.01	77	15	29.05	29.42	28.48
1890	5	.13	35	E	37.18	77	2	28.95	29.46	27.33
1891	6	2.24	44	N	34.24	69	−4	28.88	29.33	28.40
1892	7	4.60	42	NE	38.83	77	10	28.89	29.34	28.14
1893	5	.99	30	S	40.77	87	6	28.83	29.43	28.17
1894	4	.67	25	N & S	47.29	86	8	28.87	29.48	28.32
1895	3	1.20	33	S	43.06	95	5	28.82	29.24	28.36
1896	5	.87	40	N	38.47	81	8	28.85	29.34	28.08
1897	10	2.19	44	N	42.18	80	0	28.74	29.13	28.12
1898	7	1.34	31	NW	43.56	78	15	28.91	29.37	28.42
1899	9	3.31	36	N	34.63	73	8	28.85	29.35	28.37
1900	2	.49	23	NW	41.16	84	0	28.97	29.35	28.46
1901	8	1.78	58	N & S	43.19		12	28.77	29.36	28.22
Sums	175	58.41	1743		1741.83			834.93		
Means	4	1.36	43		40.51			28.79		

Rainfall.—The total rainfall was 1.78 inches, which is .42 inch above normal. There have been 12 Marches with more rainfall and 30 with less. Rain fell in measurable quantities on 8 days.

Wind.—The wind was from these directions the following number of times: North 8, northeast 5, east 3, southeast 3, south 8, southwest 0, west 1, and northwest 3. The total run of wind was 10896 miles, which is 483 miles above normal. This gives a mean daily velocity of 351.48 miles and a mean hourly velocity of 14.65 miles. The maximum daily velocity was 829 miles on the 12th, the minimum 132 miles on the 21st. The maximum hourly velocity was 48 miles from 2 to 3 P.M. on the 12th.

WIND RECORD.

MARCH.	Total Miles	Mean Daily	Maximum Daily	Minimum Daily	Mean Hourly	Maximum Hourly
1889	6871	221.64	537	55	9.23	37
1890	8180	263.87	630	89	10.99	44
1891	9752	314.57	662	126	12.67	37
1892	11133	359.13	690	105	14.96	44
1893	10231	330.03	627	32	13.75	39
1894	11342	365.87	686	132	15.25	45
1895	9290	299.70	511	139	12.50	35
1896	10681	344.54	683	196	14.36	48
1897	9722	313.64	612	105	13.07	38
1898	8088	260.90	587	34	10 87	40
1899	9324	300.77	604	117	12.53	43
1900	7613	245.58	442	85	10.23	35
1901	10896	351.48	829	132	14.65	48
Sums	123124	3971.72	.....	.....	165.06	.....
Means	9379	305.51	.....	.....	12.70	.....

ERNEST R. NICHOLS, *Observer.*

Some time ago the students held a meeting and elected a committee to ascertain the religious standing of the College. On March 22 this committee reported as follows:

Students present on this date	862
Y. M. C. A. members	383
Church members	135

Denomination.	*Church Membership.*	*Church Preference.*
Methodist Episcopal	50	108
Presbyterian	18	45
Baptist	17	24
Christian	14	26
Lutheran	10	7
Congregational	8	37
United Presbyterian	6	9
Catholic	4	3
Reformed Presbyterian	3	1
Episcopal	2	5
Methodist Protestant	2	1
United Brethren	2	1
Unitarians	1	1
Quakers	1	2
Dunkards	1	1
Friends	1	1
Evangelical	1	0
Good Will	0	2
German Baptist	0	1
Mission	0	1
Mennonites	0	1
Advent	0	3
Non-preference		411

The INDUSTRIALIST is not informed as to the result of a "poll" of the Faculty.

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☆ ☆

Editor-in-Chief, - - *Pres. E. R. Nichols*
Local Editor, - - *Prof. J. D. Walters*
Alumni and Former Students, *Prof. J. T. Willard*

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THE INDUSTRIALIST.

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CORRECT BREATHING.

CORRECT breathing is much *talked* of to-day but practiced by comparatively few. Not until we as a people learn how to breathe properly can we reach the highest degree of health. How much sickness and disease could be warded off by plenty of exercise and good, deep breaths of God's life-giving oxygen. It seems wicked not to make good use of this splendid tonic which is free to all and so plentiful. Emerson says, "Air is a good republican," and with truth, for it knows no caste. Prince and pauper alike have the freedom of its domain and it bestows its blessings with impartiality.

It has been said that one-half the deaths that occur every day are caused by diseases that might easily have been prevented, and that most of these diseases are due directly or indirectly to breathing impure air. Sixteen hundred pints of impure blood are sent to the lungs for purification every hour. From this volume of blood nearly sixty pints of carbonic acid gas are thrown off and more than sixty pints of oxygen should be absorbed. It is absolutely necessary that this supply of oxygen should be kept up continuously. Thoreau, pupil and lover of nature, has said: "For my panacea let me have a draught of undiluted morning air." Men are beginning to find out what a great remedy oxygen is, and are curing consumption by plenty of out-of-door air and sun, and the fresh-air cure is becoming quite popular.

It is claimed by many that there would be much less consumption if people understood and practiced deep breathing from childhood. How important it is that this idea of correct breathing be imbued in the child and that he have a good start. As the lungs depend on the blood for nourishment, a good quality of the blood is necessary. This means good food, proper digestion and deep breathing. Deep and forced respiration will keep the entire body in a glow, even though the weather be cold. A man nearly frozen to death has been known to have saved his life by taking

full, deep breaths and keeping the air in his lungs as long as possible, with the result that he became comfortable in a short time.

In order to breathe properly the breathing apparatus must not be restricted and hampered by tight clothing. As the blood is purified in the lungs, these organs must, in order to properly perform their work, have perfect freedom. Not only should the upper part of the lungs be used during each inhalation, but the entire organ should be inflated. The lungs, just as any other part of the body, must be used to be in a healthy condition. As an arm tied in a sling for any length of time becomes weak and useless from from lack of exercise, so with the lungs. So the simplest and best way to strengthen these much abused organs is to use them by taking deep breaths.

All breathing should be done through the nose. It is the function of the nose to regulate the temperature of the inhaled air and thus prevent the ingress of air which is not of the normal body heat. Furthermore, the nose cleanses the air of its impurities and moistens the air, thus preventing the thin membranes of air cells, through which the exchange of carbonic acid gas for oxygen takes place, from drying out. Thus we see that a cessation of nose-breathing must necessarily result in lung disorders in some shape or form. A sudden blast of icy air taken through the mouth and reaching directly the lungs is often provocative of colds and even pneumonia. Every athlete will say that he keeps his wind longer by breathing through the nose. As soon as he begins to breathe through his mouth he loses ground and is soon forced to desist the exercise on account of the pain in his chest and the dryness of his mouth. "Breathe through the nose," is a maxim which cannot be too often or too emphatically repeated.

There are three ways of inspiration—clavicular, lateral, and abdominal. Clavicular breathing consists in dilating the lungs at the top by raising the shoulders. This action contracts the base of the lungs, and is the most tiring mode of respiration, as the many muscular and bony parts raised must be sustained during expiration. Lateral breathing is accomplished by expanding the ribs laterally, and is preferable to the clavicular breathing. The best and proper mode of breathing is to inflate the base of the lungs by taking deep, full breaths. In this last way of inspiration oxidation is increased, assimilation and disintigration in the tissues are promoted, the movements of the intestines and stomach nec-

essary in the process of digestion are accelerated, the health of the lungs themselves throughout their whole extent is promoted and maintained, the heart is strengthened and its action improved. In fact, the beauty and health of the whole body is vastly improved.

If people will not of their own accord do more than ordinary breathing they should be made to breathe deeply. How? By quick leg work—running, etc.—by exercises that demand a great expenditure of force in a short time. Games and out-of-door sports of all kinds that call for quick movement will both increase the capacity of the lungs and strengthen them, providing always they are not carried to excess.

A gymnasium is not necessary to take breathing exercises that will benefit the lungs; a few simple breathing exercises in one's room, with plenty of fresh air, will help a great deal. (1) Before arising take several full, deep breaths slowly and exhale as slowly. (2) Stand and bring the hands slowly up in front of the body during an inhalation and exhale as they are slowly brought out and down to the sides. (3) Fling the arms out at the sides, shoulder height, as far back as possible, during an inhalation. Exhale as they are brought in to the chest. (4) Start with hands at the shoulders, inhale as the arms are brought straight overhead, parallel, exhale as they are brought straight out at the sides, shoulder height, and rest as they are brought to shoulders again. The arm movements help to expand the chest at every inhalation and contract it at every exhalation. By changing the movments of the arms the chief effect of the exhalation may be well directed to whatever part of the lungs may be desired. To increase the effect of respiratory exercises, the arm movements may be combined with leg movements.

Breathing exercises, if taken regularly, will do much in strengthening the lungs and are so simple any one can easily take them. In thus strengthening the lungs, heart, and in fact the whole body, we are also strengthening the brain, for nothing is more certain than that a healthy body is an indisputable prerequisite to a healthy mind. Some one has given this advice, and it seems good to follow: "Use the brain God has given you. Honor the form he has blessed you with. Take deep, full breaths of pure, life-giving oxygen. Let your chest lead. Get out in the fresh air and breathe, breathe, breathe."

GERTRUDE WILLIAMS.

SOME FAMILIAR ECONOMIC PLANTS.

(Continued from page 208.)

Coriandrum sativum. Coriander. Umbelliferæ. The seed-like fruits of this European plant are used for flavoring purposes.

Cornus. Dogwood. Cornaceae. Several species are cultivated as ornamental shrubs.

Corylus. Hazel. Cupuliferae. Shrubs bearing edible nuts. *C. Americana* is the American species, while *C. Avellana* is a native of Europe. The cultivated sorts of the latter species are usually called filberts.

Crataegus. Hawthorne. Haw. Rosaceae. Ornamental shrubs or trees. *C. Oxycantha* is the common hawthorne of Europe.

Crescentia Cujete. Calabash-tree. Bignoniaceae. A tropical American tree whose globose, gourd-like hard-shelled fruit is made into domestic utensils.

Crocus. Iridaceae. Ornamental bulbous herbs of Europe blooming early in the spring. *C. sativus* yields saffron, a yellow dye obtained from the stigmas. The best comes from Spain.

Croton. Euphorbiaceae. *C. Tiglium* of Southern Asia produces croton oil, obtained from the seeds. Cascarilla is obtained from the bark of *C. Eleutheria* found in the Bahamas. The ornamental crotons are *Codiaeum pictum.*

Cucumis. Cucurbitaceae. *C. sativus* is the cucumber, and *C. Melo* the musk melon, both natives of Asia.

Curcuma longa. Tumeric. Zingiberaceae. The coloring matter tumeric is obtained from the tubers.

Cucurbita. Gourds. Cucurbitaceae. *C. Pepo* from North America, long cultivated by the Indians, includes the pumpkin, the summer crook-neck squashes and the gourds. *C. moschata* includes the winter crook-neck squashes and *C. maxima* the winter squashes, such as the Hubbard and the turban squashes.

Cynara. Compositae. *C. Cardunculus*, the cardoon, and *C. Scolymus*, the artichoke, natives of the Mediterranean region, are used as vegetables. The leaf stalks or young heads of blooms are blanched like celery and cooked. The Jerusalem artichoke belongs to the genus *Helianthus.*

Cynodon Dactylon. Bermuda grass. Gramineae. A favorite lawn-grass in the Southern States.

Cyperus. Sedges. Cyperaceae. *C. alternifolius*, the umbrella sedge, is a decorative plant.

Dactylis glomerata. Orchard-grass. Gramineae.

Dahlia. Compositae. Mostly obtained from *D. variabilis*, Mexico.

Daucus Carota. Carrot. Umbelliferae. A native of Europe. Root used as a vegetable.

Delphinium. Larkspurs. Ranunculaceae. Several species cultivated for ornament. Northern hemisphere.

Dianthus. Pinks. Caryophyllaceae. Ornamentals from Europe. The carnations are from *D. Caryophyllus.*

Dicentra spectabilis. Bleeding heart. Fumariaceae. An old-fashioned ornamental from China.

Dictamnus Fraxinella. Gas plant. Rutaceae. An ornamental. Europe. The plant abounds with glands which secrete an aromatic volatile oil. So much is secreted by the inflorescence that in hot weather it will flash with a flame when lighted, hence the name.

Diervilla. Weigelas. Caprifoliaceae. Ornamental shrub from China and Japan.

Digitalis purpurea. Foxglove. Scrophulariaceae. An ornamental plant from Europe. An extract is used as a drug.

Dioscorea. Yams. Dioscoreaceae. Several species are cultivated in the tropics. The fleshy rootstocks furnish a staple food. Not grown in the United States except occasionally in south Florida. The plant known as yam here is a variety of the sweet potato.

Diospyros. Persimmons. Ebenaceae. The persimmon of the Southern States, extending into Southeast Kansas, is *D. Virginiana.* The Japanese persimmon, with scarlet fruit the size of a peach, is *D. Kaki.* Several species of Asia produce ebony wood, used in cabinet work.

Dipsacus Fullonum. Fuller's Teasel. Dipsaceae. The heads are provided with strong hooks and are used in the manufacture of cloth to raise a nap. Europe.

Dracæna Draco. Dragon's Blood. Liliaceae. A palm-like plant of the Old World, which furnishes the resin called Dragon's blood. The Dracaenas of our gardens, cultivated for ornament, belong to the allied genus *Cordyline.*

Elæis Guineensis. Oil Palm. Palmae. The fleshy covering of the oval fruits which are about 1½ inches long, furnishes Palm oil. Native of Africa.

Ervum Lens. Lentil. Leguminosae. One of the first plants

cultivated for food. Still common in many parts of the East. The mess of pottage which figures in the story of Jacob and Esau was made of lentils.

Eichornia speciosa. Water Hyacinth. Pontederiaceae. Cultivated for ornament. From South America. A troublesome weed in Florida, where it impedes navigation in the streams.

Erythroxylon Coca. Linaceae. Native of Peru. The leaves are chewed with lime by the Indians and act as a stimulant. Cocaine, the active principle, is now used as a drug.

Eucalyptus. Myrtaceae. Used for a variety of purposes in their native country and cultivated as street trees in California and other parts of the United States.

Euphorbia splendens. Crown of thorns. Euphorbiaceae. A thorny species, cultivated for ornament. Other species, as *E. pulcherrima*, are also cultivated.

Fagopyrum esculentum. Buckwheat. Polygonaceae. The fruit is used for food. Central Asia. The name comes from the German buch-weizen, which means beech wheat, the grain being the shape of a beech nut. Buck is a corruption of buch.

Fagus. Beech. Cupuliferae. The native species of eastern United States is *F. furruginea.*

Festuca. Fescue Grasses. Gramineae. Several species are fodder grasses. *F. pratense* is meadow fescue, improperly called English Blue-grass. *F. ovina* is sheep's fescue.

Ficus. Fig-trees. Urticaceae. *F. Carica*, the common fig, is a small tree, native of the Mediterranean region. The fruit is more or less top-shaped, two or three inches long, and comes into the American markets dried or preserved. They are cultivated in California somewhat. *F. elastica* is the India-rubber tree, the juice of which furnishes rubber. Native of South Asia. Other trees produce rubber, but this is the one commonly cultivated in greenhouses under the name of rubber tree. Our supply comes mostly from a South American tree of a different order. *F. Indica* is the Banyan of India.

Fœniculum vulgare. Fennel Umbelliferae. Leaves used for table decoration and for flavoring soups.

Fragaria Chilœnsis. Strawberry. Rosaceae. Our common cultivated forms are derived from this species, which is native in the mountains from Chile to Oregon. Those cultivated in Europe come from *F. vesca* and *F. elatior.*

Fraxinus. Ash. Oleaceae. Several species furnish lumber.

Fuchsia. Onagraceae. Several species from the Andes are cultivated for ornament.

Gaultheria procumbens. Ericaceae. Foliage furnishes oil of winter-green.

Gladiolus. Iridaceae. Several African species cultivated for ornament.

Gleditschia tricanthos. Honey locust. Leguminosae.

Glycine hispida. Soy bean. Leguminosae. From East Asia, where it is commonly cultivated for food. Becoming frequent in Kansas, where it is used for stock feed.

Glycyrrhiza. Licorice. Leguminosae. The extract of the root of *G. glabra* and other species furnishes licorice.

Gossypium. Cotton. Malvaceae. There are several species or at least subspecies cultivated in various parts of the warmer regions of the earth. The fibre is an outgrowth of the seed-coat. It has been cultivated in both hemispheres since prehistoric times. The seeds produce an oil which is widely used in the arts, and the residue, cotton-seed meal, is used as stock-feed and a fertilizer.

Guaiacum officinale. Zygophyllaceae. A tree of tropical America whose extremely hard wood is called Lignum Vitae and is used by cabinet-makers for making pulleys, etc.

Haematoxylon Campechianum. Logwood. Leguminosae. A small tree of tropical America whose wood furnishes the red dye. The heart wood is extracted with alcohol.

Hedera Helix. English Ivy. Araliaceae.

Helianthus. Sunflower. Compositae. *H. tuberosus* is the Jerusalem artichoke, whose tubers are used for feeding hogs. It is a native of America, the name (Jerusalem) being, it is said, a corruption of the Italian word for sunflower. It is of considerable value as a human food.

Heliotropium Peruvianum. Heliotrope. Borraginceae.

Hibiscus Syriacus. Shrubby althaea. Malvaceae. A common ornamental shrub.

Hordeum vulgare. Barley. Gramineae.

Humulus Lupulus. Urticaceae. A vine of Europe and America, cultivated for the fruit, which is extensively used in the manufacture of beer. Hops owe their efficancy to the presence of the resinous grains found on the surface of the scales.

Hyacinthus orientalis. Hyacinth. Liliaceae.

Ilex. Holly. Ilicineae. *I. aquifolium* of Europe and *I. opaca* of eastern United States are ornamental evergreen trees and are used for Christmas decorations.

Impatiens. Balsam. Geraniaceae. Ornamental plants from Europe. *I. noli-tangere* is the touch-me-not; *I. Balsaminea*, the garden Balsam; *I. Sultana*, the sultana.

Indigofera tinctoria. Indigo. Leguminosae. The macerated foliage of this Asiatic species and also the American *I. Anil*, furnishes the well-known dye.

Ipomoea. Morning-glory. Convolvulaceae. Several species are used for ornament. *I. bona-nox* is the moon-flower; *I. purpurea* is the common morning-glory. *I. Quamociit* is the cypress vine. *I. Batatas* is the sweet potato, a native of Brazil, whose fleshy roots are used as food. The specific name is the Indian name, which in a corrupted form in some way was transferred to the common potato.

Iris. Iridaceae. Many species cultivated for ornament. Called also Fleur-de-lis or Flower-de-luce.

Isonandra Gutta. Gutta percha. Sapotaceae. A tree of southern Asia with milky juice from which the gutta percha is obtained. Widely used as an electric insulator.

Juglans. Walnut. Juglandaceae. Includes the black walnut, *J. nigra*, and butternut, *J. cinerea*, both of America, and English walnut, *J. regia*, of Europe.

Juniperus. Cedar. Coniferæ. Several species used for ornament and lumber. Our red cedar is *J. Virginiana.* Others are called junipers.

Lactuca sativa. Lettuce. Compositae. A salid plant thought to have been derived from the wild lettuce of Europe, *L. Scariola.*

Larix Americana. Larch. Coniferae. A deciduous tree native of northern America, cultivated for ornament. *L. Europaea* is similar. Our species occur in swamps and is often called tamarack.

Lathyrus odoratus. Sweet pea. Leguminosae. Cultivated for ornament. Native of Sicily.

Laurus nobilis. Lauraceae. This is the true laurel. An evergreen tree of South Europe.

Lavandula vera. Lavender. Labiatae. Oil of lavender is obtained by distilling the flowers. Europe.

Lespedeza striata. Japan clover. Leguminosae. A forage plant of the Southern States.

A. S. HITCHCOCK.

THE INDUSTRIALIST.

Published weekly during the College year by the Printing Department of the

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Manhattan, Kansas.

PRES. E. R. NICHOLS.....Editor-in-Chief
PROF. J. D. WALTERS.....Local Editor
PROF. J. T. WILLARD.....Alumni Editor

LOCAL NOTES.

Arbor Day, April 10.

Librarian Josephine T. Berry was ill a part of last week.

The next teachers' examination in Riley county will be held at Riley, April 27.

Rev. A. Ogle, of Indianapolis, is visiting for a few days with his son-in-law, Professor Goodell.

During the twelve weeks of the winter term the College dining-hall consumed 4500 pounds of meat and 1730 pies.

Through the courtesy of Secretary John G. Springer, the Farm Department has been donated Vols. 1 to 8 of the American Southdown Record.

The Board of Regents located the new Physical Science building in the open lawn east of the old Chemical Laboratory, and northeast of the Main building.

H. W. Campbell, of Hill City, the inventor of the sub-surface packer and the developer of the Campbell method of soil culture, has promised to lecture before the farm classes soon.

The Military Department recently received a consignment of saluting charges for the old guns and a quantity of blank and ball cartridges for the Springfield rifles from the Rock Island arsenal.

The College pay-roll for March amounted to $5746.79. Of this the employees received $292.08, the students $927.28, the Experiment Station force $668.34, and the Faculty and their assistants $3859.09.

Ex-Assistant J. G. Haney, who is now connected with the Chihuahua Railroad Company as an agricultural expert, has ordered a large bill of trees of the Horticultural Department, for planting in his new domain.

The Department of Botany is "house cleaning." Everything appertaining to the department is being subjected to a thorough overhauling and cleaning with a view to careful re-arrangement for convenient and economic use.

Mrs. D. H. Otis recently received from the Japanese Consul at Chicago a bottle of the sauce made from soy beans and a package of soy-bean cheese. The sauce is quite appetizing but the cheese seems to demand an acquired liking.

The class in crop production is studying from week to week current numbers of the *Kansas Farmer* and *Wallace's Farmer* A comparison is made between the methods advocated in these papers and the methods taught in the lectures and text-books.

The April meeting of the Manhattan Horticultural Society occurs on the eighteenth. The program is as follows: "Use of the Spray Pump," John Tennant; "Forestry in Kansas," Dr. A. F. Waugh; Paper—"What I have Learned by Experience," Mrs. Sam Kimble.

The fourth-year girls of the Domestic Science course have commenced their work in demonstrations. The first of these was given a week ago by Mrs. Barnett. It was entitled "A Yellow Tea." The second was by Miss Bourne, on "School Lunches." Professor Cowgill, of the *Kansas Farmer*, visited the class last Wednesday and spoke of their work in a highly complimentary way.

One of the most handsome and accurate of modern instruments of percision, Jung microtome, is now in the Botanical Department temporarily, being a personal loan from the laboratory of Washington University, St. Louis, through the kindness of Dr. Trelease. Professor Roberts is making use of the apparatus in concluding a piece of research work. It's refinement can be judged by the fact that it will cut sections as thin as one four-thousandth of a millimeter.

Maj. Chas. Eastman, of the College cadets, has accepted an invitation to participate in the Kansas inter-collegiate shooting contest. Each college enters a team of ten who are allowed ten shots each at a range of two hundred yards, on the home grounds. The team making the highest score takes the medal. The ten men who represent K. S. A. C. will be chosen from the best marksmen of the battalion at the regular target practice next month. The contest will be governed by the U. S. army regulations, the Springfield rifles being used.

Mr. F. L. Huxtable, superintendent of the Wichita division of the Continental Creamery Company, appreciates the value of the farmers' institute work. In a letter to D. H. Otis, Mr. Huxtable says: "It is with much regret that we read of the shortage in your funds for institute work and that the work will be delayed until July 1. When the Benton institute, or picnic, will come off, about May 1, it will be a necessity that we have you there, and if you will kindly inform us as to the first or second week in May suiting you best, we will pay your transportation here and take care of you."

The Board of Regents was in session the past week. All members were present, but Mr. E. T. Fairchild left before the close of the meetings, on account of sickness at home. The Board organized for another biennial period by electing Capt. J. S. McDowell president, Prof. E. T. Fairchild treasurer, and Hon. Wm. Hunter

loan commissioner. Pres. E. R. Nichols is now *ex-officio* a member and secretary of the Board. They transacted the usual routine business of the spring session, looked after the financial condition of the College and made preliminary arrangements for the erection of the two new buildings for which appropriations were made by the last legislature. A full account of the proceedings of the session will be published in the next INDUSTRIALIST.

The Ellsworth *Reporter* indorses E. T. Fairchild, of the Board of Regents of the Kansas State Agricultural College, in the following handsome manner: "We notice that the name of Professor Fairchild of our city is being mentioned by not a few of the Kansas dailies for State superintendent of public instruction. Professor Fairchild is pre-eminently qualified for this office by reason of his scholarly attainments and his thorough practical knowledge of the requirements of our public institutions of learning. At present he is, and has been for years, superintendent of the Ellsworth city schools, and we venture the assertion that they have no equal in the State. Professor Fairchild held the office of county superintendent of this county for some time and under his administration our schools received their first stimulus which has since continued and has placed them second to none."

We are glad to note that County Superintendent Swingle is determined to make the county diploma of Riley county something in reality as well as in name. He writes, in the last number of the *Nationalist:* "The county superintendent reserves the right to revise any of the grades when in his judgment it seems to be right and proper to do so. We again protest to parents and teachers against allowing pupils to write upon any branch with a view to completing it unless they have actually canvassed the work thoroughly. In most cases, pupils should not only have completed the texts with a reasonable amount of supplemental matter, but they should also have given the various subjects a thorough review. The trouble with many parents, pupils and teachers is, that they try to have the pupil complete the work from one to four years too soon, and in any case, whether the applicant fails or passes, it is to his positive injury."

A law passed by the last legislature makes the President of the Agricultural College a member of the Board of Regents. In addition to raising the question as to whether this new law had, by its repeal of the old one, left the College without a Board of Regents, it also provided a Board of eight members instead of seven—the three members who held over from the old Board, the four newly appointed members and the President. The difficulty arising from the repeal of the old law was solved by the reappointment by the governor of the entire Board after the new law had gone into effect. But there could not be found any way of making three plus four plus one equal seven. Appreciating the embarrassment of the governor in this situation Mr. Brock magnanimously offered to withdraw his name. This offer was finally accepted and the new Board appointed accordingly. It is very much

regretted that Mr. Brock is not to be a Regent. His services on the Board would have been invaluable, and would have given to the alumni association its due representation. He should be slated for the first vacancy that may occur.

ALUMNI AND FORMER STUDENTS.

J. E. Payne, '87, is the author of Bulletin No. 59 of the Colorado Experiment Station. This gives observations upon the condition of agriculture in the great plains of eastern Colorado, obtained by a journey of over thirteen hundred miles by wagon.

Miss Elizabeth Rachel Davis, daughter of Mr. and Mrs. W. J. Davis, and Mr. Charles Wesley Shull ['97] were married at the home of the bride's parents in Tabor Valley, Wednesday evening at eight o'clock, Rev. F. D. Jackson, of Wabaunsee, officiating.—*Nationalist.*

E. M. Haise, second-year student 1896, and Louisa M. Maelzer, '99, were married at the home of the bride in Neuchatel, March 26, 1901. Mr. Haise is a very successful stockman of Russell county, and while not a graduate himself has shown a proper appreciation of the advantages of a complete course at this institution. The best wishes of many friends are bestowed on the new couple.

The U. S. Department of Agriculture has just issued Farmers' Bulletin No. 127, on "Important Insecticides: Directions for Their Preparation and Use." Its author is C. L. Marlatt, '84, first assistant entomologist. The bulletin is a complete and valuable one. It is a thorough revision of Farmers' Bulletin No. 19, four editions of which had been issued previously. It, like all of the farmers' bulletins, will be sent free to all who apply to senators or representatives in Congress, or to the secretary of agriculture.

It seems that the alumni are not to be represented on the Board of Regents, as was expected. Under the law of 1897, four Regents were to be appointed to begin their terms of office April 1, 1901. This law is the one which took the President of the College off the Board. At the last session of the legislature a bill was introduced restoring the President to membership in the Board, and providing for the appointment of but three Regents to begin their terms April 1, 1901. While action on this bill was pending the governor sent in nominations of four Regents, in accordance with the terms of the law then in force, and these were confirmed by the senate. A few days later the bill referred to was passed and received the signature of the governor. This left four men confirmed for three offices, and to relieve the situation Mr. Brock, '91, withdrew. General regret is expressed on this account, as his legal knowledge and general familiarity with the College situation fitted him to be a most valuable officer.

TERMS AND VACATIONS.

Fall Term, 1901, Thirteen Weeks.

WEDNESDAY, SEPTEMBER 18.—Examination for admission, at 9 A.M.
THURSDAY, SEPTEMBER 19.—College year begins.
TUESDAY, SEPTEMBER 24.—Short course in domestic science begins.
SATURDAY, NOVEMBER 2.—Examination.
THURSDAY AND FRIDAY, DECEMBER 19, 20.—Examination at close of term.

Winter Term, 1902, Twelve Weeks.

MONDAY, JANUARY 6.—Examination for admission, at 9 A.M.
TUESDAY, JANUARY 7.—Winter term begins.
TUESDAY, JANUARY 7.—Short courses in agriculture, horticulture and dairying begin.
SATURDAY, FEBRUARY 15.—Examination.
THURSDAY AND FRIDAY, MARCH 27, 28.—Examination at close of term.

Spring Term, 1902, Eleven Weeks.

MONDAY, MARCH 31.—Examination for admission, at 9 A.M.
TUESDAY, APRIL 1.—Spring term begins.
SATURDAY, MAY 10.—Examination.
TUESDAY AND WEDNESDAY, JUNE 17, 18.—Examination at close of year.
JUNE 15 TO 19.—Exercises of commencement week.
THURSDAY, JUNE 13, AT 19 A.M.—Commencement.
JUNE 20 TO SEPTEMBER 17.—Summer vacation.

Fall Term, 1902.

WEDNESDAY, SEPTEMBER 17.—Examination for admission, at 9 A.M.
THURSDAY, SEPTEMBER 18.—College year begins.

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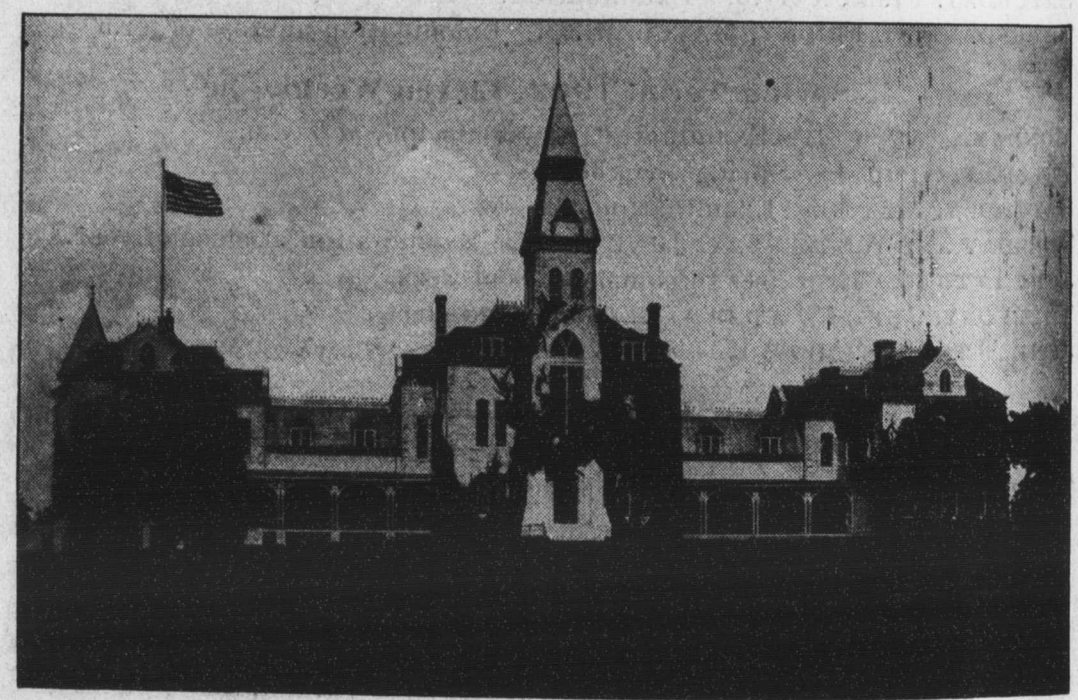

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☆ ☆

Editor-in-Chief, - - *Pres. E. R. Nichols*
Local Editor, - - *Prof. J. D. Walters*
Alumni and Former Students, *Prof. J. T. Willard*

☆ ☆ ☆

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Professor of Oratory.
GEORGE F WEIDA, Ph. D. (Johns Hopkins)..... ..... 517 Fremont street
Professor of Pure Chemistry.
HENRY M. COTTRELL, M. S. (Kansas State Agricultural College).....College Campus
Professor of Agriculture, Superintendent of Farm.
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Professor of Domestic Science, Dean of Women's Department.

——— .... ———
Professor of Mechanical Engineering, Superintendent of Shops.
EDWIN A. POPENOE, A. M, (Washburn).....Seventh and Osage streets
Professor of Horticulture and Entomology, Superintendent of Orchards and Gardens.
FRANK C. LOCKWOOD, Ph D (Northwestern)..... .....Fourth and Osage
Professor of English.
BENJ. L. REMICK, Ph. M. (Cornell College)..... Fourth and Osage
Professor of Mathematics.
BENJ. F. EYER..... ....512 Houston street
Professor of Physics and Electrical Engineering.
C. E. GOODELL, A. M. (Franklin).....626 Houston street
Professor of History and Economics.
SEPTIMUS SISSON, S. B. (Chicago), V. S. (Toronto).....Cor. Manhattan avenue and Moro
Professor of Zoölogy.
TAIT BUTLER, V. S. (Toronto)..... .....527 Poyntz avenue
Professor of Veterinary Science.
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Superintendent of Printing.
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Principal Preparatory Department.
MISS GERTRUDE WILLIAMS..... ..... 105 S. Juliette avenue
Director of Physical Training.

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CHARLES EASTMAN, Cadet Major and Acting Commandant .....611 Poyntz avenue

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May Secrest, B. S. (K. S. A. C.). Assistant in Domestic Art, Cor. Leavenworth and Seventh
Wm. Anderson, B. S. (K. S. A. C.), Assistant in Mathematics. Cor. Humboldt and Juliette ave
Gertrude Barnes, Assistant Librarian..... .....Cor. 9th and Moro
Albert Dickens, B. S. (K. S. A. C.), Assistant in Horticulture, Fremont and Manhattan avenue
William Baxter, Foreman of Greenhouses . . .. ———
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Theodore Lindquist, M. S. (Northwestern), Ass't Physics... .....Cor. Fifth and Humboldt
W. M. Sawdon, B. S. (Purdue), Assistant in Mechanics.....Juliette and Houston
Ada Rice, B. S. (K. S. A. C.), Assistant in Preparatory Department.....Osage and 8th. street
Louis Wabnitz, Foreman Iron Shops..... ..... 5th and Osage
Henry Van Leeuwen, (Univ. Wis. D. S.) Inst'r in Cheese Making .... Manhattan and Kearney
E. W. Curtis, (Univ. Wis. D. S.) Instructor in Butter Making..... ..... ———
Florence L. Grant (Mass. Normal Art School), Assistant in Drawing... .....Fourth and Osage
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Elizabeth Agnew, B. S. (K. S. A. C.), Assistant in Domestic Science, Ninth and Moro streets
Jesse B. Norton, B. S. (K. S. A. C.), Assistant in Entomology..... ..... ———
E. C. Gasser, Foreman of Foundry and Blacksmith Shop .. .. ———
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THE INDUSTRIALIST.

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THE SPIRITUAL ELEMENT IN MODERN ENGLISH LITERATURE.

LITERATURE is the reflex of life, and possesses worth precisely to the degree that it gives back the real. By the real I mean the universal and the eternal—that in human nature which appeals to all men in all ages. Not every fact of life is of sufficient importance to be given a permanent place in art. Only a limited area of the vast and varied web of human experience has been considered by men of letters worthy of portrayal, and out of that which has been written a very great part has failed to elicit widespread interest, and has, therefore, perished. Certain facts must be looked upon as transient and unessential. The ugly, the trivial, the false and the evil can not endure; they have no permanent place in the divine order. The great and enduring elements of literature, we shall discover, spring from eternal and universal verities. When these verities are expressed with fitting dignity and distinction, we shall have an immortal masterpiece.

Now, it has been just these deep and enduring things that our representative modern writers have caught up and reflected in the great literature of the century. They have been earnest and serious men whom nothing could satisfy save the sternest reality. From Wordsworth to Browning they have had a passion for verities, and an unmistakable contempt for sham and pretense. Cost what it might, they have insisted upon pressing home to the very heart and core of truth. "To look steadily at the object" is the way Wordsworth phrases it. Carlyle declares that it is the duty of the hero to bring men back to reality, "to force them to penetrate beneath the surface, to teach them to stand upon things and not upon the shows of things." Ruskin insists upon utter faithfulness to nature, and demands that the artist reject nothing, select nothing, and scorn nothing. George Eliot does not hesitate any more than does Wordsworth to introduce the most palpably commonplace characters into her fiction, for she realizes that "a true delineation of the smallest man and his scene of pilgrimage

through life is capable of interesting the greatest man; that all men are to an unspeakable degree brothers, each man's life a strange emblem of every man's, and that human portraits, faithfully drawn, are of all pictures the welcomest on human walls."

And in pursuing this conviction with respect to reality in life and reality in literature these men have unflinchingly faced and fearlessly accepted the problems of science, the problems of social reform, and the problems of the moral consciousness. Tennyson was as much the poet of science as of romance. So insistent and imperative have been the demands of social reform during the century that "Carlyle could not write histories in peace; Ruskin could not criticise art; Morris could not be content to remain 'an idle singer of an empty day;' even Tennyson could not dream among the Lotos-eaters." And the same spirit that led these men to forego the fascination of the artistic world for the study of the outward conditions of humanity has led others, with equal gifts and equal zest, to explore the subjective experiences of men. Never before in the history of literature have the consequences of moral infirmity been set forth with such inevitable force; never have the darker and more terrifying aspects of the moral and spiritual life been so resolutely confronted, so remorselessly analyzed, as by George Eliot, Nathaniel Hawthorne and Robert Browning. No specter of the soul has been allowed to pass without challenge; no lurking spirit of doubt or despair that has not been tracked to its den and dragged into the open light of day.

Now, although we have not inquired into the nature of these real and eternal things that have offered themselves as subject-matter of literature to our poets, novelists, and essayists, it must already have occurred to us that they are spiritual; and such, indeed, they are. There is no reality save spirit. For, ask yourself, what have been the abiding and universal interests of the human race. Have they not been just such interests as we have been considering? Have they not been the faiths and loves and joys and aspirations of men? What has life offered so absorbingly and perennially real as these? What man is a stranger to them or indifferent to them? The interests that have been most constant and universal have not been of the earth, earthy. Men have most tenaciously set their affections upon things which are above, not upon things which are upon the earth. Cold and hunger, cord and gibbet, flame and torture have seemed less real to the human race

than love, and faith, and hope; and ten thousand times over has this been proven by hero and saint, by devoted mother and inspired philanthropist; for the real is the spiritual, and spirit plumes its wings to try immortal worlds.

Our supreme obligation to the great poets and seers of the past century arises from the fact that, rejecting outworn and external standards of authority, they have sought their inspiration from within and have made their own world according to the deep instincts of their own nature. The indescribable charm and potency of these great spirits lie in the fact of their clear perception and vigorous affirmation of an ideal universe, a world invisible to fleshly eyes and intangible to fingers of earth, yet immeasurably more real than any that has ever made its appeal to the five senses. All men at some time and some men at all times feel themselves to be a part of such an imperishable spiritual order; but to most of us, weak, proud, ignorant men that we are, come only stray flashes of light and hazy adumbrations of those truths that forever live for us, yet forever elude us. But to our poets and seers has been granted the steady and penetrating gaze that sees from center to circumference. Our poets have been men of faith and men of vision, and without fear or guile they have given us accurate transcripts of reality as it has appeared to them. "Philosophy," says Emerson, "is still rude and elementary. It will one day be taught by poets. The poet is in the natural attitude—he is believing, the philosopher after some struggle having only reasons for believing." This has been true of Emerson himself, and true of his still greater colleagues. Men, all of them, of sane intellects and pure hearts, who have implicitly trusted the deeper instincts of their being, and, untrammeled by custom, dogma, or tradition, have viewed the world and the problems of life in fresh relations. They have looked upon life as its own interpreter, and, *for themselves*, have deemed it as important, as human, and as much a discovery of the real, to will, to feel, to trust and to aspire, as to know. They have pointed men to God as the ground of all being; have asserted the inalienable worth and dignity of the human soul; and have affirmed those fundamental instincts and promptings.

"Which, be they what they may,
Are yet the fountain light of all our day,
Are yet a master light of all our seeing."

Our age has been one of agonizing religious struggle and of almost morbid self-consciousness. It has been an age of doubt; to many, an age of pessimism and despair. Fully awake to the requirements of the scientific temper and every whit loyal to them, yet impelled from within by passionate and insistent yearnings for the ineffable and enduring ideals that have reared themselves in our souls and have commanded our deepest lives, many have found themselves in a strait betwixt two, and not a few have suffered calamity. In such a crisis Wordsworth, Emerson, Tennyson and Browning have come to many as prophets and guides, and have exerted an incalculably stimulating influence upon them. Not since the Scripture canon was closed have there been such fresh and vigorous utterances of moral and religious truth, such reassuring and satisfying conquests of faith as have been recorded for us by these our greatest writers of the modern era. They have had the insight and the hardihood to abandon the letter for the spirit; the shadow for the substance; to pierce through the show of things, for the sake of grasping things themselves. Love and God and immortality have seemed to these men so immeasurably the most vital and necessary needs of the soul that they have claimed them—claimed them in the interest of life itself, asserting them as a demand of their total manhood. It was borne home to them, as to every sane and serious soul, that life is a mockery—an empty and meaningless delusion—if so be that what the race has deemed its deathless loves and hopes and yearnings are to be forever quenched in a six-foot mouldering mound of earth.

As the century has advanced the religious motive has more and more predominated. Indeed, it has been supreme with all of our greater Victorian poets. Our poets have insisted—sometimes with almost tragic intensity—upon a solution for their doubts and perplexities. Some have evaded the problems of the age and have sought with only questionable success to forget their deeper yearnings and misgivings in a dream world of æsthetic beauty. Others, Arnold, Morris and Arthur Hugh Clough, unable in the final issue to reconcile science with faith, have betaken themselves to the wilderness of unbelief to wander in pathetic uncertainty and doubt. But of all the strong men that our century has sent out to inquire into the promised land of faith toward which we have been journeying, Tennyson and Browning have brought back the best report. They have been the Caleb and Joshua among our

scouts. They have declared that the land which they were sent up to spy out is a goodly land; one which flows with milk and honey; and have urged that we are well able to overcome it, and that we should go up at once and possess it. These two—our latest and our greatest Victorian writers, contrary to the mystic and rapturous religious contemplation of Wordsworth and Emerson in the earlier part of the century—have insisted upon sharp and definite distinctions in their world of faith. They claim an immortality of personal love and communion; they claim a personal God; and basing these claims upon the life and teachings of the incarnate Christ, they stand pre-eminently as the Christian poets of the age. It is not too much to say that the religious motive is uppermost in their works taken in their completeness; but the climax of the religious struggle and the religious triumph of not only the poets themselves, but of the age as well, is recorded in "Saul" and "In Memoriam." Not until half a life time had passed did Tennyson summarize the results of his long battle with gloom and doubt. Here is his conclusion; it stands as the prelude to "In Memoriam:"

"Strong Son of God, immortal love,
Whom we, that have not seen thy face,
By faith, and faith alone, embrace,
Believing where we can not prove;
Thine are these orbs of light and shade;
Thou madest life in man and brute;
Thou madest death; and lo, thy foot
Is on the skull which thou hast made.
Thou wilt not leave us in the dust:
Thou madest man, he knows not why,
He thinks he was not made to die:
And thou hast made him: thou art just.
Thou seemest human and divine,
The highest, holiest manhood, thou:
Our wills are ours, we know not how;
Our wills are ours to make them thine.
Our little systems have their day;
They have their day and cease to be:
They are but broken lights of thee.
And thou, O Lord, art more than they.
We have but faith: we cannot know;
For knowledge is of things we see:
And yet we trust it comes from thee.
A beam in darkness: let it grow.
Let knowledge grow from more to more,
But more of reverence in us dwell;
That mind and soul, according well,
May make one music as before,
But vaster."

There is no note of defeat in this cry; it sounds the note of triumph, but of subdued and tempered, not buoyant and jubilant

triumph. It was left for Browning to sound the sharp, clear, far-reaching trumpet peal of conquest. He attained the goal with magnificent confidence and ease. What that goal is may be learned from the concluding words of his "Saul;" words as noble as have been uttered during the century.

FRANK C. LOCKWOOD.

IS IT A TENDENCY OF THE TIMES?

CULTURE and refinement may be acquired by contact with refined people, by reading cultured books, and by hearing elevating music. If this statement be true, we will be able to trace a contrary influence from a lack of true refinement in expression, whether in the English or the musical language.

In the ordinary light reading for recreation one is strongly impressed nowadays with the abruptness of style of most successful short story-writers. The tension of American living is visible here as elsewhere. The publisher says in effect: "The shorter the better; your reader has no time for the mere beautiful. So don't waste ink and thought on so trivial a point as graceful expression." And a writer must have very true, high ideals not to conform to what seems to be the demand. American readers are not so dull that it is necessary to tear off diction in great ragged chunks and fling at them in order to secure an impression. It is true we require a writer to have something to say—some story to tell. A framework is essential to support and bind together more sightly parts. But dry bones are not pleasing to the eye. Neither do their vibrations cause restful dreams. One prefers rounded forms, firm, white flesh, and dimples. And the majority of readers call for draperies of some kind to satisfy an æsthetic taste.

Several of the short-story magazines, and even the *Saturday Evening Post*, seem to delight in giving the minds of their readers severe gymnastic exercise. We must spring from pinnacle to pinnacle, and are transferred from continent to continent in an instant's time, and are expected to alight like a bird and soar away again. The race becomes so exciting at times that one is conscious of a feeling of anxiety whether the story will win or the reader. After so rapid a transition we sink down at the conclusion in a breathless condition. Such a display of mental agility

is doubtless good training under certain conditions, but would hardly be chosen for relaxation when seated at ease in an arm-chair after a day of labor.

That these publishers have been mistaken in their estimate of American readers is proven by the success of Maurice Thompson's latest book, a simple tale, told in well-chosen words in a smooth, flowing style. There is one writer who has cherished his beautiful ideals and kept them unsullied. After enduring a few evenings of the others we revel in Alice of Old Vincennes like one of Thompson's own characters. He "listened, as one who hears a clever reader intoning a strange and captivating poem."

Would that we might be so charmed upon hearing one of our popular airs! But in our music there seems to be a tendency toward the same level as in our short stories. Two-steps, ragtimes, and cake walks! The country is flooded with them. They all have some catchy refrain that attracts for the moment; but where are the melodies that will live? These are all formed after the same pattern. Their variety is attained by some startling modulation or still more striking minor or chromatic progression. We are hauled at break-neck speed up or down a rocky way, and the more bumps and bruises are given in the operation the more effective and popular is the piece judged to be. Such a journey may be exhilarating, but is neither soothing nor uplifting in its influence.

The great compositions, unfolding new beauties at each hearing, the harmonies weaving a spell about one's soul and bearing it up as an offering of incense—these seem to belong to the past. We need beautiful thoughts, clothed in graceful language. We need charming melodies, jeweled with appropriate harmonies and given a spiritual interpretation. We trust that these may come to help correct this tendency of the times. MAUDE HUTTO.

The sale at the arena last Saturday was one of the most satisfactory in the history of the company. The people came to see good animals and were in no wise disappointed. In spite of bad roads a good-sized crowd of farmers were on hand as well as many outside breeders. Prices were altogether satisfactory to buyers, sellers, and the stock company as well. Thirty head of fairly well-bred horses, twenty-five head of cattle, two stallions and three jacks were sold.—*Republic.*

THE INDUSTRIALIST.

Published weekly during the College year by the Printing Department of the

Kansas State Agricultural College.
Manhattan, Kansas.

PRES. E. R. NICHOLS.....Editor-in-Chief
PROF. J. D. WALTERS.....Local Editor
PROF. J. T. WILLARD.....Alumni Editor

LOCAL NOTES.

Professor Eyer "enjoyed" the mumps last week.

Professor Weida was "under the weather" last Friday.

Superintendent Rickman spent Sunday and Monday in Topeka.

Miss Josephine T. Berry was in Topeka last week for medical treatment.

Professor and Mrs. Metcalf will give one of their popular recitals at Mariadahl, May 3.

J. G. Haney, formerly assistant in the Farm Department, has shifted his headquarters from Chihuahua to Minice, Mexico.

Baseball game between the K. S. A. C. and Baker University teams next Wednesday afternoon in the Manhattan athletic park.

E. P. Goodyear now cares for the milk in the barn, in place of D. L. Kent, who last week accepted a position on a California dairy farm.

Miss Meridith, the assistant State secretary of the Y. W. C. A., visited College and conducted the chapel exercises last Saturday morning.

The milk yield of the twenty-eight College cows has ranged between 520 and 565 pounds the past week. No. 166 is giving the highest yield at present. She reached 42.2 pounds on the fifth of this month.

The new system for increasing the city water supply was put in operation this week. It now gives us a usage of one million gallons per day and is so arranged that the old system may be used in cases of emergency. The total cost was $2,000.

Henry VanLeeuwen has closed his service with the dairy department of the State Agricultural College at Manhattan and is here visiting his mother. He will soon be in the field looking after the Continental Creamery Company's factories.—*Nortonville News.*

Notwithstanding the horrid weather and awful roads, the lectures on English literature by Doctor Dunlap, of the State University, were well attended. The professor is a keen critic and a good reader, and his work was highly appreciated by all who were present.

Professor Lockwood and Miss Josephine Berry gave a delightful reception in Domestic Science Hall on Saturday, April 6, in honor of Dr. Dunlap, of Lawrence. Faculty members and the various clubs of the city were guests of the most enjoyable function.

The Regents of the State Normal School and the State Agricultural College held a joint meeting at Hays City last Thursday and Friday to consider the leasing of the land of the Fort Hays reservation. President Nichols left for Hays City on Thursday noon and returned on Saturday.

Professor Brown's sons have launched their little steamer in the Blue river and are preparing to make regular trips to neighboring points of interest. The little craft is as neat as a peach and promises to be quite an attraction. It is being propelled by a three-horse-power gasolene engine.

The library in the Botanical Department is being classified according to the excellent system in use in the library of the Missouri Botanical Garden, at St. Louis, which is a more specialized development for a departmental library of the Dewey system obtaining in the general library here.

Professor D. H Otis has returned from a visit to the State University of Missouri, at Columbia. He reports that institution as prospering. The agricultural college connected with the University is preparing to erect a dairy building, for which the last legislature appropriated $40,000. A new chair of dairy husbandry has been organized and strenuous efforts are being made to advance this branch of agriculture.

NOTICE TO CONTRACTORS.—Sealed bids for refitting the old chemical building for a gymnasium will be received at the office of the undersigned till 2 P. M., May 4, 1901. Bids must be accompanied by a certified check for $300, payable to the Treasurer of the College, as a guarantee that the successful bidder will furnish a satisfactory contract and bond and enter upon the work within a reasonable time. Plans and specifications will be on file at my office after April 12. Mark all envelopes containing bids "Bids for gymnasium." E. R. NICHOLS, Manhattan, Kan.

One of the wise acts of the recent meeting of the Board of Regents of the Agricultural College was to appoint a committee consisting of the President of the Board, Capt. J. S. McDowell; the Vice-president, Hon. F. D. Coburn; Regent E. T. Fairchild and Prof. H. M. Cottrell to proceed at the earliest practicable date to visit and inspect not less than four of the recognized leading agricultural colleges or schools in nearby states, for the purpose of investigation of their facilities, systems, and methods, with a view to better qualifying themselves and their associates for the most judicious management and advancement of our own institution; also for the inspection and purchase of blooded live-stock for the College as provided for in House Bill No. 235, passed by the recent legislature.—*Kansas Farmer.*

We are in receipt of a letter by Mr. F. L. Williams, of Agricola, Kan., the trustee of the Charles Silly fund which was given the Agricultural College some years ago for the purpose of "aiding worthy, white, male students in acquiring an education at this institution." Mr. Williams writes: "The second year of my little fund is about closed and I have $25 in cash on hand for the first boy who asks for it. Besides this $25 and all expenses, this little fund has been used (income only) by twenty-two different boys. If the cash on hand goes to a new boy it will make twenty-three, or possibly twenty-four, as some ask for less than $25. Please note: (1) My second annual report will be with the President of the College in a few days. The boys object to having their names published in the INDUSTRIALIST, as they claim it is too much like a bank publishing a list of its borrowers. (2) The money is now loaned at five per cent. (3) Reference is required from the boy's old home neighborhood of old reliable business men or farmers. (4) A letter is required on September 1, January 1 and May 1 (of the boys) telling where they are and how they are getting along. (5) Notes can be renewed September 1 if necessary, and if the boy remains in school at the K. S. A. C. (6) The grantor of this fund has returned here, bought a home through my agency, examined all my papers, and refused a quit-claim deed to the property. I offered him corn belonging to this fund and he replied: 'No, I will buy my corn like other people.' The corn was offered without pay."

ALUMNI AND FORMER STUDENTS.

Schuyler Nichols, '98, was graduated in medicine from the Barnes Medical College, St. Louis, Mo., last week.

Mary Waugh-Smith, '99, after a successful inauguration of her own career as a housekeeper in Seattle, Wash., has resumed her series of interesting and accurate articles on household topics for the *Kansas Farmer*.

The Division of Forestry of the U. S. Department of Forestry, through its section of tree planting, will make extensive investigations in Nebraska this season. A large part of this work will be in charge of R. S. Kellogg, '96, who will begin observations about May 1.

Miss Florence Corbett ['95] has accepted a position with King's County Hospital, Brooklyn, and began work in that institution Monday. Miss Corbett will have entire direction and supervision of the kitchens and domestic science of the hospital. Considering that there are nearly always some two thousand six hundred meals served daily, ranging from those served healthy nurses and attendants through a long list of convalescents in various stages to serious invalid cases, one can hardly comprehend the knowledge required and the responsibility incurred by Miss Corbett's position.—*Republic.*

Board Meeting, April 3 to 6.

Board called to order by President Fairchild; members all present.

Moved by Regent Fairchild, that the Secretary be authorized to sign the vouchers issued under House Bill No. 756 (1901). Carried.

Moved by Regent Nichols, that a committee of two be appointed to recommend plans for remodeling chemical building. Carried. Committee, Nichols and Hunter.

Moved by Regent Satterthwaite, that a committee of two be appointed on fire protection. Carried. Committee, Satterthwaite and Coburn.

The following report of committee on fire protection was adopted:

Your committee, to whom was referred the matter of fire protection for the College as provided for in an appropriation by the last legislature, report as follows: That the College President and the Professor of Applied Chemistry be a committee with instructions to ascertain and procure the best apparatus for the purpose intended, available within the appropriation, and to place such apparatus where likely to be most serviceably available in case of an outbreak of fire, and in the immediate custody at all hours of persons trained in and directly responsible for its ready and best use.

J. M. SATTERTHWAITE AND F. D. COBURN, *Committee.*

Moved by Regent Nichols to employ Mr. Haskell as architect for the new chemical-physical building, at two and one-half per cent of cost for furnishing plans, specifications, and architectural supervision. Carried.

Moved by Regent Fairchild, that the chemical-physical building proper cost not more than $50,000. Carried.

The committee on repair of chemical building reported in favor of enlarging the drill room and using lattice trusses instead of iron, and that Professor Walters be the architect and superintendent.

Moved by Regent Fairchild, that plans and specifications be furnished by Professor Walters and bids called for as soon as practicable. Carried.

On motion of Regent Fairchild, Regents McDowell and Nichols were elected a committee to open bids and let contracts.

By motion of Regent Coburn, the following resolution was adopted:

Resolved, That the President of the Board, with two of its members, to be designated by him, shall be a committee to proceed at the earliest practicable date, with the professor of agriculture, to visit and inspect not less than four of the recognized leading agricultural colleges or schools in nearby states; this for the purpose of investigation of their facilities, systems and methods, with a view to better qualifying themselves and their associates for the most judicious management and advancement of our own institution; also for the inspection and purchase of blooded live-stock for the College as provided for in House Bill No. 235, passed by the recent legislature.

Moved by Regent Stewart to adopt the following resolution:

WHEREAS, The legislature at its recent session passed an act accepting from the United States the tract of land known as the Fort Hays Military Reservation, and

WHEREAS, The grant of said land to the State of Kansas provides it should be utilized by the State Normal School and Agricultural College, and

WHEREAS, The act of acceptance provides that no money shall be expended on said lands until the attorney-general shall find that the State can have a good title to all of said land, and

WHEREAS, It has come to the knowledge of this Board that a considerable portion of said land is held and claimed by private parties, and that the citizens of Hays in connection with the attorney-general are now endeavoring to secure a relinquishment of the present claimant on said land; therefore be it

Resolved, That a committee of four be appointed from the Board with directions to call upon the attorney-general, and if after consultation with him it shall be deemed best, shall meet with the Regents of the State Normal School at Hays next week and act in concert with them and assist the citizens there in securing the release of the claims on said reservation lands, but under no circumstances shall any arrangements be made whereby the funds of this College or the State of Kansas shall be used for securing said releases or for making any improvement on said land until such time as the title of all of said land shall be vested in the State.

Moved by Regent Satterthwaite, that the committee consist of Regents McDowell, Coburn, Stewart, and Fairchild. Amendment carried. Resolution as amended adopted.

On motion of Regent Stewart, the following resolution was adopted:

Resolved, That the election of College employees be for no definite time, and subject to termination at the pleasure of the Board of Regents.

The President appointed the following standing committees: Auditing—Stewart and Hunter; Buildings and Grounds—McDowell, Satterthwaite, and Nichols; Station—Coburn, Stewart, and McDowell; Faculty and Assistants—Nichols and Fairchild; Library and Museum—Hunter and Fairchild; Domestic Science—Satterthwaite and Coburn; Reservation—Fairchild and McDowell; Special committee on inspection and purchase of livestock—Coburn and Fairchild (McDowell and Cottrell).

Moved by Regent Stewart, that Professor Lockwood be granted one year leave of absence, to begin July 1, 1901. Carried.

Moved by Regent Hunter, that Professor Eyer be granted leave of absence for one year from July 1, 1901. Carried.

On motion of Regent McDowell the election of a professor of mechanical engineering was postponed until the June meeting.

Moved by Regent Nichols, that Mr. Haskell furnish plans and specifications for heating the physical building, the amount not to exceed $6000. Carried.

Regent McDowell moved the adoption of the following resolution, which motion prevailed:

Resolved, That the educational requirements for students between the ages of eighteen and twenty-one to enter the short courses shall be those required for a common-school diploma.

Moved by Regent McDowell, that the next meeting of the Board be Tuesday, June 11, at 3 P. M. Carried.

Regent Satterthwaite offered the following resolution, which was adopted:

Resolved, That owing to present lack of information and suggestion as to the best method of proceedure for carrying into effect the provisions of House Bill No. 154, passed by the recent legislature, the subject be referred to a committee consisting of Regents McDowell, Stewart and Nichols for consideration and inquiry, and for a report and recommendation thereon at the June meeting of the Board.

TERMS AND VACATIONS.

Fall Term, 1901, Thirteen Weeks.

WEDNESDAY, SEPTEMBER 18.—Examination for admission, at 9 A.M.
THURSDAY, SEPTEMBER 19.—College year begins.
TUESDAY, SEPTEMBER 24.—Short course in domestic science begins.
SATURDAY, NOVEMBER 2.—Examination.
THURSDAY AND FRIDAY, DECEMBER 19, 20.—Examination at close of term.

Winter Term, 1902, Twelve Weeks.

MONDAY, JANUARY 6.—Examination for admission, at 9 A.M.
TUESDAY, JANUARY 7.—Winter term begins.
TUESDAY, JANUARY 7.—Short courses in agriculture, horticulture and dairying begin.
SATURDAY, FEBRUARY 15.—Examination.
THURSDAY AND FRIDAY, MARCH 27, 28.—Examination at close of term.

Spring Term, 1902, Eleven Weeks.

MONDAY, MARCH 31.—Examination for admission, at 9 A.M.
TUESDAY, APRIL 1.—Spring term begins.
SATURDAY, MAY 10.—Examination.
TUESDAY AND WEDNESDAY, JUNE 17, 18.—Examination at close of year.
JUNE 15 TO 19.—Exercises of commencement week.
THURSDAY, JUNE 19, AT 10 A.M.—Commencement.
JUNE 20 TO SEPTEMBER 17.—Summer vacation.

Fall Term, 1902.

WEDNESDAY, SEPTEMBER 17.—Examination for admission, at 9 A.M.
THURSDAY, SEPTEMBER 18.—College year begins.

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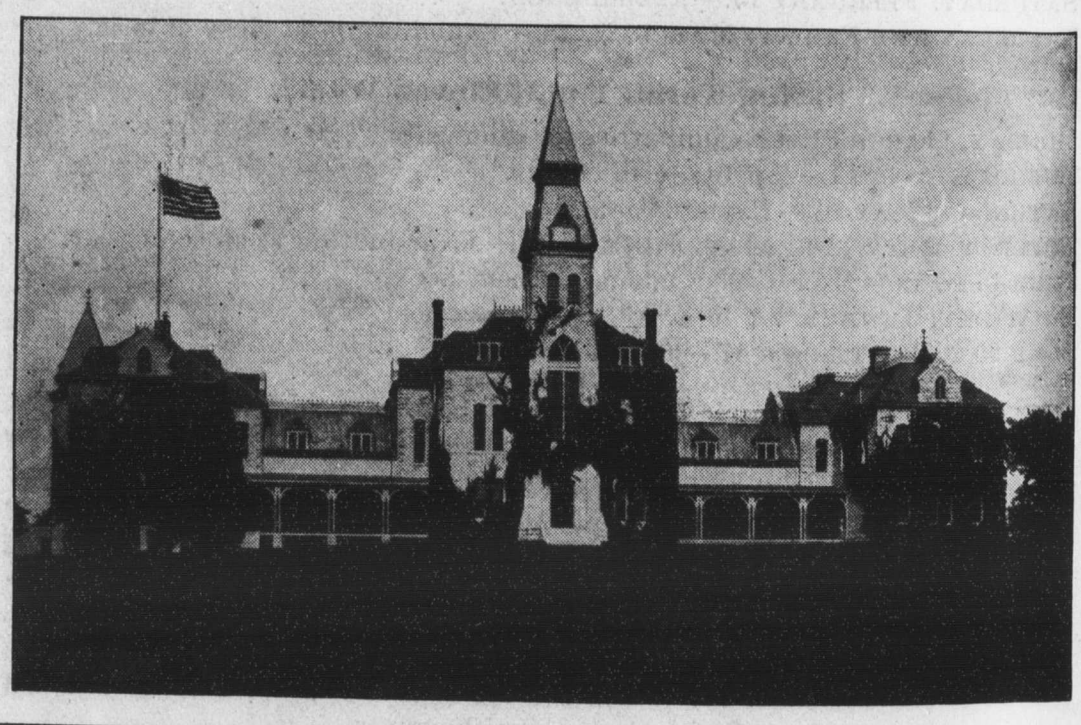
is supported by the General Government and by the State of Kansas. and is designed, by its instruction, to promote the liberal and practical education of the industrial classes in the several pursuits of life.



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ERNEST R. NICHOLS, A. M., PRES.,
MANHATTAN, KANSAS.

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☆ ☆

Editor-in-Chief, - - *Pres. E. R. Nichols*
Local Editor, - - *Prof. J. D. Walters*
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☆ ☆ ☆

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THE INDUSTRIALIST.

VOL. 27. MANHATTAN, KAN., APRIL 23, 1901. NO. 28

THE IMPORTANCE OF THE KANSAS STATE AGRICULTURAL COLLEGE AND EXPERIMENT STATION IN KANSAS AGRICULTURE.

[Paper read before the Dairy Institute at Kansas State Agricultural College, March 22, 1901, by Thomas A. Borman.]

DURING the past twenty years, Kansas has produced agricultural products the value of which aggregates three billion of dollars, or an annual average of one hundred fifty million. The more important items of this grand total are spring and winter wheat worth, in round numbers, four hundred twenty million, corn worth six million, oats worth one and one-half million, and live-stock products, of which are steers, pigs, hens, sheep, cows, milk, butter, cheese, eggs, and wool, in value reaching nearly nine million dollars. These have been the Kansas farmer's main stays—his support during the alternating seasons of abundant rain, generous and growing sunshine and gentle smiles, as well as those seasons when promising fields of grain scorched and died as if smitten by the fiery blasts of hades' breath.

By way of recreation during these twenty years the Kansas farmers produced rye, barley, buckwheat, sweet and Irish potatoes, castor beans, flax, hemp, tobacco, broom-corn, millet, sorghum, Kafir-corn, timothy, clover, blue-grass, alfalfa, and orchard and garden products to almost five hundred twenty million. No other state of this Union offers so varied a list of products. Kansas is a great State, yet she has only entered upon the morning dawn of her possibilities. Her wealth and greatness of to-day, the possibilities of the morrow, lie in her agricultural achievements —the fruits of earnest, intelligent, persevering labor on the farm.

Within the borders of Kansas lie forty-five million acres of arable and fertile land with conditions almost perfect for the development of improved animal and farm husbandry to the highest degree of perfection. The figures just related tell the wonderful and the truthful story of the twenty years' achievements of what is already a giant commonwealth, but insignificant are they to those which are to record the values of the next twenty years'

products. Not a field lies within Kansas' borders which could not produce two times as much of corn and wheat as now if more intelligent methods of soil culture were employed. Not a farm exists on which two times as many pounds of pork, beef or milk could not be produced without increasing either the labor or the money invested. Our farmers are grossly ignorant of the most economical combinations of feeds and the most economical methods of producing and harvesting feeds. If we are to realize the greatest profit from our natural or acquired resources we must strive to advance the respective interests of the grain grower, the stockman, the dairyman, and the general farmer.

The farming of the future is not the happy-go-lucky kind of the past. Farming is no longer the occupation of the numbskull who "couldn't learn his figgers or grammar and so was fit for farmin." The present agriculture calls for young men trained in its various branches. The dairy farmer must have a man who knows the value of feed for food production and how to produce the largest flow of milk at the minimum cost. The stockman is looking for a feeder who can make a steer put on a pound of fat where formally only a half pound was made. The corn and wheat grower of the future wants the services of a man who, by understanding the laws of physics, will enable him to store moisture and to reduce the loss of water by evaporation. Admitting that these are facts, we are forced to the conclusion that the farmers of the twentieth century, who are the boys of to-day and with whom rests the future greatness of Kansas, must be educated for the farm and the dairy, just as lawyers and doctors are educated, and the Agricultural College must supply this education.

To the observer, the Kansas State Agricultural College, with the Experiment Station, has been an important factor in the development of Kansas agriculture. The influence of these institutions has been more felt during the recent years than formerly, for the reason that each year there is manifested a greater interest to profit by the teachings which eminate therefrom. No man can estimate in dollars and cents the value of the bulletins which have come from this institution. These hundred bulletins giving in plain language the results of as many important experiments, covering all branches of agriculture, have made Kansas rich in dollars and knowledge, and their influence will live and grow through the decades to come.

Every farm, in a way, should be an experiment station, the farmer planting, harvesting, observing, studying his soil, etc., applying such farming operations as best suited his conditions, yet he has neither time, money nor equipment necessary to carry on the more important work of experiment for himself or his neighbor. The government aids him by having made provisions that at this College complete and carefully conducted experiments may be made upon such subjects as concern the welfare of this great State, to whose conditions the same are applicable. The results of such experiments as are here made are nature's verdict. The results are reliable. They are not worked out to confirm the whims of biased professors, as is sometimes asserted by those not knowing better. The question is submitted to nature and under the conditions of climate and surroundings prevailing at this College, which are favorable to the great farming belt of Kansas. The answer comes and the sensible farmer is he who has confidence enough in the solution to rely on the results. We know men who swear and farm by the accuracy of Kansas bulletins, and they are neither fools nor crazy, but at the head of the class of successful farmers.

The range of experiments conducted here has been broad, completely covering the field of agriculture. The important crop experiments have concerned potato culture, sorghum and Kafir-corn, alfalfa, soy beans, cow peas, grasses, clover, wheat and oats, sugar-beets, ensilage crops, and the silo. Valuable investigation has been made into disease of animals, viz., Texas fever, blackleg, corn-stalk disease, hog and calf cholera, and tuberculosis. The important feeding experiments have been those which related to hogs, steers, dairy cows, and calves. Each of these have been practical experiments, the value of which may enter into daily practice on every Kansas farm and the influence of which on the State's wealth has been greater than we shall ever know. Many a farmer pays no attention to farm bulletins until he gets into a tight place—either his cows refuse to give milk on some feed he is using, or his calves die from blackleg or the improper use of skim-milk, or he fails to agree with his creamery in the matter of testing milk or cream—then he submits the case to the Kansas Experiment Station. A bulletin covering the subject follows, and then comes the farmer's first realization of the importance of this great institution. I have seen in the most remote corners of

Kansas, in the sod-house on the western plains and the more pretentious farm home of the eastern valley, well-worn copies of those bulletins entitled, "The Feed and Care of the Dairy Cow," "The Skim-milk Calf," "Alfalfa," "Soy Beans," and "Kafir-corn." I have seen these bulletins thumbed, dog-eared, marked, torn and patched almost beyond recognition, yet there they lie with the Bible on the clock shelf, safe from children's harm, and receiving daily homage. If the Kansas State Agricultural College had never given to Kansas another printed page excepting these, Kansas people would have had value received for all the financial assistance it has ever given the institution. I hope to see the time when these bulletins may be reprinted and in such numbers that the supply will never again be exhausted so long as Kansas is in the farming business, for just that long will she want that information.

Briefly summarized, the foregoing is what this Kansas College has done in the past. But its labors are not yet ended. With the passing of the years and the advancing of agricultural interests comes the widening of its usefulness in solving the new and more important problems. In many localities Kansas soil has begun to show the effect of continuous cropping, the washing or dashing rains, and the loss of soil by blowing wind. Here arises the problem of restoring as well as retaining the fertility of the soil, the most practical, cheapest and most effective means. The farmer must determine upon a system of agriculture that will not place his fields subject to the destruction of the March winds, which in a few years do more damage than years of continuous cropping.

This Experiment Station must develop a system of soil cultivation which will aid in the conservation of moisture. The annual rainfall in central and western Kansas is ample for abundant crops were it not that a large per cent of the moisture is lost by improper methods of cultivation. On this subject the average farmer is densely ignorant, and he will not be able to secure from his land maximum production until he has learned the secrets.

The thoughtless over-stocking of our prairie pastures has brought about a decrease acreage and a greatly diminished feeding power of the natural meadows. Many a farmer has allowed the ravages upon his prairie grass to continue untill he has found himself without natural pasture for his work-horses. The

farmer seeks a method of renewing these pastures, and if there be none worth the trying, then which of the many varieties of tame or wild grasses are best adapted to the use of permanent pastures?

Our farmers annually waste thousands of dollars worth of roughage by their failure to harvest at the proper time and by careless methods of preserving the same for future use. We must demonstrate to the farmer the necessity of cutting millet in the bloom instead of allowing it to seed. He must be shown how the feeding value is decreased. He must see it in dollars and cents before he will heed. He must know the increased value of corn-fodder cut before it had cured in the rows. He must know it will pay to stack the roughage or mow it away before the fermentation following the rains and snows has destroyed fifty per cent of its food constituents. We have seen alfalfa fields untouched by the mower until the stem of the plant had become as hedge brush and ninety per cent of the leaves had fallen. The farmer must be made to understand that such practices are wasteful and extravagant and almost criminal. Not one farmer in ten can afford such practices, and it is the work of this institution to demonstrate the loss resulting therefrom.

This College has given us the true value of scrub cows for dairy purposes and demonstrated the value of the balanced ration in milk production. But the farmer who means to realize the most milk from his dairy is not content with the performance of scrub animals. There are thousands of farmers in Kansas to-day who are determined to make dairying the leading industry of the farm. They are small farmers. They will make the cow one branch of an extensive system of farming. These wish to know the value of certain breeds of cows for certain purposes. They want to know the value of pure dairy blood compared with scrub blood. They want to know the value of pure-bred Holsteins or their grades as compared with Jerseys or their grades. They want to know whether a Jersey or a Holstein cross is the general-purpose cow. At present this information cannot come from the Kansas State Agricultural College. It should. The College will not be filling its greatest usefulness until it has representatives of the leading dairy breeds with which to experiment along these lines. Up-to-date agriculture demands this knowledge now.

Likewise the beef- and pork-producing interest want infor-

mation upon this same subject of breeds, having cheaper and larger production in view. There are other lines of experiment equally important. This mention will serve to impress all hearers with the importance of the College in its relation to our farm production and greatest cash return for the labor expended.

The future of Kansas, agriculturally speaking, is in the hands of this school. It is the only Kansas institution from whose halls comes a farmer, a dairyman, a butter maker, or a station operator —each performing a certain work in the development in this State's agriculture—each occupation contributing to the aggregate wealth of Kansas. This school is unable to supply the demand made upon it for young men trained to take positions as superintendents of farms, dairies, stock-breeding farms, creamery butter makers, landscape gardners, etc. These positions have liberal salaries and offer to the worthy excellent opportunity for promotion. The agriculture of to-day offers to the young man of business sense and hustling ability greater chances to win than the professions of law, medicine, or of the ministry. Kansas' acres are broad and fertile and to blossom as a rose they need only the skill and earnest effort of the educated farmer.

Kansas has the largest agricultural college of the world, and yet it lacks much of being what it should. Its position in the development of the State is such that it requires large sums of money for purposes which have at this time not received one cent of the public funds. No short sighted financial policy, such as will curtail the expense or needs of the institution, will meet with the approbation of Kansas people. We want, with regard to this school, no retrenchment. We want expansion. In matters concerning this school we want no republican or populist policy. We want a Kansas policy and all for Kansans. Money spent in this school should not be entered on the great ledger as expense. It is an investment paying big interest, and to the use of Kansas a worthy heritage.

A somewhat unusual service was held at Manhattan when the deacon in charge of the mission, the Rev. Dr. Weida, baptized three candidates "of riper years" by immersion, on mid-lent Sunday. This was Dr. Weida's first opportunity for the administration of the sacrament of holy baptism since his ordination.—*Kansas Churchman.*

SENIORS IN DOMESTIC SCIENCE.

When the funny man of the funny paper wants to have fun with the cook, he pictures her as a slovenly individual wearing a dirty, dark-colored apron over a torn and untidy dress, a black poker in her hand and a streak of mixed soot and grease adorning her features, unattractive at the best. This caricature on womanhood is expected to bring forth from the dark and dingy mysteries of her domain the food which shall please the palate and nourish the physical structure of the images of God. The kitchen is pictured as a place whose processes must be concealed but whose results must be satisfactory.

Quite in contrast with these caricatured conditions the kitchen laboratory of the Kansas State Agricultural College was found to be when, last week, a couple of consumers of kitchen products dropped in upon the senior class in domestic science. A young lady of seventeen was presenting a thesis on school lunches. In true scientific fashion, the thesis, or lecture, was illustrated by preparing the lunch, before the class, from the raw materials. The young lecturer and her assistants looked very dainty in their white aprons and white sleeve protectors, and with white bows on their heads. It was very evident to the gentlemen that the college-bred cooks suffered nothing in contrast to their twenty-five peers, who, with note-books in hand, took down the principal points of the address. These girls as they appeared at the work of creating a plentiful repast for the entire class, not omitting the two gentlemen visitors, need not have been ashamed to be called to meet the most honored or distinguished guest. When it came to sampling the luncheon there was nothing to criticise.

Of course, men, especially when they have reached the very practical age of silvery hairs, have learned to admire the woman who can prepare a substantial and attractive meal. Any man, whether young or old, admires the ability to produce such a meal and look pretty at the same time. But what shall be said of the young lady who can do all this and at the same time deliver an entertaining address setting forth the science of nutrition and the preparation of food suited both to the caprice and well being of people of various ages, habits of life, and conditions of health?

These young ladies are learned in the sciences; they are well read in literature and history; most of them are accomplished musicians, and they are as proud of their achievements in domestic science, and have as great occasion to be proud of these achievements, as has the graduate in electrical engineering to be proud of what he has mastered.—*Kansas Farmer.*

SPRING-TERM PROGRAM, SHOWING INSTRUCTOR,

INSTRUCTOR.	First Hour. (9:05 to 9:50)	Second Hour. (9:55 to 10:40)	Third Hour. (10:45 to 11:30)	Fourth Hour. (11:35 to 12:20)
Walters	Special Draw.. 2	Axonometry...20	Geom. Draw †..15	Perspective †.. 21
Grant	Obj. Draw †....18	Obj. Draw †....17	Obj. Draw †....30	Obj. Draw †.....26
Brown	Singing, Notation, Band, Orchestra			
Brown, R. H	Organ and Orchestral Instruments			
Hutto	Piano and Organ			
Willard*				
Weida	Geology.....37	Geology.....18	Ch. Met., W. F, 26 Or. Chem. TTS, 16	Ch. Met., W. F, 28 Or. Chem. TTS, 27
Clothier*				
Nichols				
Metcalf				
Cottrell*			Oratory II.....23	Oratory II †....18
Otis*	Breeds and Br. 9	Tillage & Fer..19	Agl. Econ..... 8	Feeds & Feed..16
Stoner				Agriculture.....31 House. Econ....27
Popenoe*	Orn. Gardening, 9	Entomology ...44		
Dickens*				Entomology....45
Norton*	Entomology...45		Veg. Garden...18	
Lockwood	Readings II....41	English Lit.....24	English Lit.....20	English Lit.....13
McKeever	German.....15	Psychology....31	Psychology....27	Phil. Ed. 31
Rupp	Themes..... 40	Themes..... 36	Readings II... 33	Readings II.....36
Remick	Calculus..... 7	Algebra III... 20	Higher Alg....39	Algebra III.....15
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Anderson	Algebra III....22	Geometry I....26	Geometry I....29	Algebra II.....29
Lindquist	Algebra II.....30	Algebra II.....36	Algebra I.....32	
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Pape				Physiology.....20
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Kinsley*	Bacteriology..23			Bacteriology... 6
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Westgate*			Botany.....25	
Sawdon		Thermo..... 9	App. Mech..... 5	Hydrau. W. F..29
House	Wood-work.....	Wood-work	Wood-work.....	Wood-work.....
Wabnitz	Apprentices			17
Gasser	Blacksmithing Monday, A. M.			22
	Blacksmithing Monday, P. M.			21
Lund	Apprentices			3
Howell	Sewing III 11	Sewing II.....13	Dressmaking...13	Sewing III.....14
Secrest	Sewing I & II..11	Sewing III.....11	Sewing III.....14	
Jones			Sewing II.....12	
Rickman ‡	Printing..... 9	Printing..... 7	Printing 8	
McFarland	Arithmetic A .31	Bookkeeping..56	U. S. Hist.....27	
Rice	Geography 9	Readings I.....30	Readings I.....19	Composition....27
Holroyd		Grammar B ... 7	Algebra I.....21	Grammar A.....29

*Experiment Station work.
†Every other day.
‡Three apprentices ten hours a day.

The baseball game between the teams of Baker University and the K. S. A. C. at the Manhattan athletic park last Wednesday afternoon resulted in an easy victory for the farmers. The score stood sixteen to three in favor of Manhattan.

President Nichols, Professor Cottrell and Regents McDowell and Coburn started on an inspection tour of agricultural colleges last Sunday afternoon. They intend to see the Agricultural College of Indiana, at Lafayette, on Monday and Tuesday; the Agricultural College of Illinois, at Champaign, on Wednesday and Thursday; the Agricultural College of Wisconsin, at Madison, on Friday and Saturday; the Agricultural College of Minnesota, at Minneapolis, on Monday and Tuesday of next week, and the Agricultural College of Iowa, at Ames, on the succeeding Wednesday and Thursday. The party will probably return on Friday.

SUBJECTS, AND NUMBER IN CLASS.

Fifth Hour. (1:30 to 2:30)	Sixth Hour. (2:35 to 3:35)	Seventh Hour. (3:50 to 4:50)	Eighth Hour. (4:55 to 5:55)
Advanced Objective Drawing	Tu. & Th., 33		
Perspective, Wed	7		
Obj. Drawing 21	Free-hand Draw 35		
Analytical Chemistry	73	Chemical Laboratory	51
Sp. Chem 3			
Chemical Laboratory	73		
		Chemical Laboratory	51
Oratory II 13	Rehearsals for chapel speaking		
Domestic Science III		W. & F., 24	
Demonstrations		Tu. & Th., 25	
Hort. Industrial	Tu. & Th., 3; W. & F., 12		
Surveying	38		
Zoology Laboratory	17		
Zoology Laboratory	Tu., 8; Th., 9		
Bacteriology Laboratory	W., 8; F., 7	Bacteriology Laboratory	W., 8
Machine Design	T. & T., 4	Engineering Design	Tu. & Th., 9
Wood-work			
Machine Shop	Tu. & Th., 24; W. & F., 21		
Foundry	Tu. & Th., 10; W. & F., 9	Foundry	W. & F., 10
Blacksmithing	Tu. & Th., 22; W. & F., 24	Blacksmithing	Tu. & Th., 17
Boiler and Engine			6
Dressmaking	13		
Sewing II & III	W. & F., 5		
Printing	17	Printing	

The introduction of Bromus Inermis upon prairie sod, with a view to determine whether it is possible to form a mixed sod with this and the native wild grasses, and whether, if such a mixture can be formed, it would be more profitable than either alone, is an experiment about to be undertaken by the Botanical Department.

The officers and chairmen of committees of the Y. M. C. A. for the ensuing year are as follows: President, Arthur Leidigh; vice-president, A. H. Sanderson; recording secretary, J. A. Loomis; corresponding secretary, W. R. Hildreth; treasurer, J. A. Craik; general secretary, S. J. Adams; chairman of new student committee, R. W. DeArmond; membership, F. B. Fleming; religious meetings, J. M. Scott; bible study, T. W. Buell; finance, J. A. Craik; inter-collegiate relations, W. R. Hildreth; missionary, W. B. Banning; music, A. N. H. Beeman; educational, H. E. Reed; employment, W. O. Gray; temperance, F. L. Courtier; furnishing, A. H. Sanderson; Sunday-school, G. W. Gasser; and literature, W. A. Thomas.

THE INDUSTRIALIST.

Published weekly during the College year by the Printing Department of the

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Manhattan, Kansas.

PRES. E. R. NICHOLS.....Editor-in-Chief
PROF. J. D. WALTERS.....Local Editor
PROF. J. T. WILLARD.....Alumni Editor

LOCAL NOTES.

Born, to Mr. and Mrs. Chas. Pape, on April 14, a daughter.

The College Dancing Club gave a "hop" at Union Hall, Monday evening.

The Erie Creamery, Erie, Kan., writes for a young man to work in a creamery.

Three new students were assigned to work in the junior class one day last week.

The College and State University ball teams will meet at athletic park on Thursday next, April 25.

Professor McKeever succeeds Hon. F. M. Emmons as the leader of the choir of the Presbyterian church.

The fourth-year class in landscape-gardening have improved some of the pleasant mornings in observation work on the campus.

The cold and wet weather of February and March has destroyed the peach crop of next summer, except in high and well-protected orchards.

The cabbage in the gardens look sturdy and strong after the cold nights of last week, an evidence of satisfactory hardening in the cold frames.

Mr. D. L. Kent left Tuesday evening for a weeks visit at home prior to taking up a good position on a dairy farm of Geo. D. Barron, Compton, Cal.

The *Sunflower Bulletin*, published at Parsons, Kan., contains an article apiece from Roscoe White and Delbert Morning, dairy students last term.

Professor Stoner read a paper on "Scotch Scientists and Philosophers" before the Manhattan Domestic Science Club at their regular meeting, April 18.

The dairy class of 1901 have received their class buttons. The souvenir is ornamented with the letters K. S. A. C., the date, and the picture of a Guernsey cow.

Reverend Ogle, of Indianapolis, Ind., conducted the Tuesday morning chapel exercises for us last week. Reverend Ogle is the father-in-law of Professor Goodell.

The Experiment Station council has assigned to the Botanical Department the preliminary investigations on the renovation of worn-out pasture lands in Harper county.

Secretary Clemons is working on the list of students for the forthcoming catalogue. The exact number can not be given as yet, but it will be above the thirteen hundred mark.

The College dairy has just closed an interesting calf experiment in which a comparison was made of the value of shelled corn and corn-chop. The shelled-corn lot came out ahead.

J. W. Mills, dairy student last term, has resigned his position as operator of the Manhattan skimming station in order to accept a position as creamery butter maker in South Dakota.

The College campus is putting on its Sunday clothes of green velvet, studed with silver and gold buttons. There is no lovelier place in Kansas in spring than the College quarter-section.

The nursery stock of the Horticultural Department has been sold. The numerous inquiries reveal the fact that all the nurseries in the State have enjoyed the best trade they have had for many years.

H. W. McKinstry, of the Continental Creamery Company, paid a visit to the College last Tuesday. He reports that the twenty-six dairy school boys employed by his company are giving excellent satisfaction.

Hon. F. D. Coburn, vice-president of the Board of Regents, has enriched the agricultural literature of Kansas by a new book on "alfalfa." It is being published by the well-known firm of Orange-Judd Co., of New York.

The Forest Park Creamery Company, of Ottawa, Kan., writes for two young men, one to operate a skimming station and the other to be posted along the line of feeds, feeding, and milk testing, in order to talk over matters with their patrons pertaining to dairy subjects.

Mr. A. J. Myers, dairy student last term, writes from Americus, Kan., as follows: "I took charge of the Americus skimming station April 1, and am getting along nicely. I have a very warm feeling for the K. S. A. C., and shall look back with pleasure to the three months spent in that institution."

Arrangements are completed for the coming session of the Riley county Normal Institute. It will be held at Manhattan, as usual, commencing Monday, June 3, and closing Saturday, June 29. The examination for teachers' certificates will be held Monday and Tuesday, July 1 and 2. Supt. Geo. W. Kendrick, of Junction City, will again be the conductor. He will be assisted by R. J. Barnett, Miss Stella Kimball and Miss Ida Strack, of Junction City.

The Farm Department has received donations of two chain hanging cattle stanchions from O. H. Robertson, Forestville, Conn., and a Wilder steele latch swing cattle stanchion from J. K. Wilder and Sons, Monroe, Mich. These stanchions will be used for class illustration, and eventually will be set up in the new dairy barn.

ALUMNI AND FORMER STUDENTS.

Geo. W. Smith ['93] graduates April 23 from the Chicago Homeopathic Medical College of Chicago.—*Mercury.*

J. W. Van Deventer, '86, secretary of the Colorado Book Company, writes from Sterling, Colo., that "all is well." G. P. Rose, of Kansas City, Kan., is president of the Colorado Book Company.

D. W. Working, '88, writes from Denver, Colo., for biographical notes and a picture of ex-President G. T. Fairchild. He is writing an article on "Prominent Agricultural Educators of America."

Nellie Sawyer Kedzie, '76, professor of household economy and hygiene here 1882 to 1897, lectured in Kansas City April 13. The *Star* gave an extended notice of the event, including the following comments: "In Lyceum hall yesterday afternoon Mrs. Nellie Kedzie, professor of domestic science in the Bradley Polytechnic Institute of Peoria, Ill., lectured on 'Domestic Science.' About one hundred women were present. The lecture was given under the auspices of the Women's Atheneum and the Women's Auxiliary. . . . Mrs. Kedzie's lecture was remarkable for its conciseness, clear-cut sentences, absence of straining for rhetorical effect, and was a masterpiece of grammatical construction. She was warmly applauded at its close."

Prof. C. F. Burtis ['91], of the Oklahoma experiment station at Stillwater, was at the Kansas City stock-yards last week with a fine lot of Shorthorn grade steers which were fattened under his direction. They were bought by Swift & Co., and careful records will be taken to ascertain the comparative ways in which the animals, which were fattened upon different kinds of food, will "dress out." Five of the steers were fed corn-meal and Kafir stover. They gained an average of three hundred fifty-seven pounds during the one hundred fifty-one days they were in the feed lot and sold for $5.20 per one hundred pounds. Five head which were fed Kafir-corn meal and Kafir-corn stover gained three hundred fifty-two pounds and sold for $5.10. A third lot, which was given corn-meal and alfalfa hay, made an average gain of four hundred twelve pounds and brought $5.40. A lot which was fed Kafir-corn meal and alfalfa hay gained four hundred ten pounds and brought $5.40. Professor Burtis was formerly connected with the Experiment Station at Manhattan. He expresses himself as satisfied with the results and believes the experiment will prove helpful to stock feeders generally.—*Mercury.*

KAFIR-CORN VS. GOOD BUTTER.

(Press Bulletin No. 86, from Farm Department.)

The Kansas Experiment Station has received numerous letters from farmers and dairymen asking if Kafir-corn will produce a poor quality of butter. The cause of these inquiries has been the reading of the following dispatch in our daily papers:

"Lyndon, Kan., March 26.—It has cost the Overbrook creamery of this place $400 to learn that the milk from cows fed on Kafir-corn will not produce good butter. For the past three months the manager of the creamery has been unable to make high-grade butter, and has lost about $400 on a reduction in the price. He had experts at work to locate the trouble, but they failed. Finally one of the common laborers at the creamery did some experimenting on his own account. He kept the milk separate and churned some of each. He soon found out that the milk from the cows fed on Kafir-corn was what brought down the grade of butter."

If Kafir-corn, which has been such a good yielder and drought-resister, should be excluded from the ration of the dairy cow many farmers in central and western Kansas would be obliged to quit the dairy business. This would result in a loss of thousands of dollars annually. Fortunately, other experiences do not tally with the report. The Kansas Experiment Station has fed the grain and fodder of Kafir-corn for months at a time and has never experienced a particle of trouble from its producing a poor quality of butter. During the months of February and March, 1898, the Station herd was fed almost exclusively on Kafir-corn meal for the grain ration. At that time the dairy school was in session and we were making butter from the milk of this herd without the addition of any milk from outside sources. The butter was tested by competent judges and pronounced excellent in quality. Since this time both the grain and the fodder of Kafir-corn has been used as the whole or part of the ration, the milk being sent to the Manhattan creamery, where it has been saved to use in the making of starters. The milk has also been used each year at the dairy school, both with and without milk from other sources; it has been specially sought for by our cheese boys in their effort to make a first-class quality of cheese and in no instance have we heard a single complaint from the use of the College milk on account of the cows being fed on Kafir-corn.

When the season is a poor one for the curing of the crop and the grain has been left on the fodder, considerable penetrating dust arises from the crop when handled at feeding time. If the feeding is done just before or at milking time particles of this dust, with all the germs that they carry with them, will undoubtedly find their way to the milk-pail and may cause a poor quality of butter. In the instance of the Overbrook creamery, the manager states that the Kafir-corn in that part of the country had all been damaged by rains, and where the feed was the poorest the milk from that farm made the poorest butter. Indications point to a slight decomposition of the feed. Hay and fodders of any kind contain large quantities of offensive germs, which if allowed an entrance into the milk-pail and permitted to multiply rapidly, will cause a very undesirable quality of butter.

This experience, together with others with which we are familiar, points to the necessity of feeding after rather than before milking. In this way, Kafir-corn, properly balanced, is one of our best feeds for a dairy cow and should be grown extensively where corn is uncertain.

D. H. OTIS.

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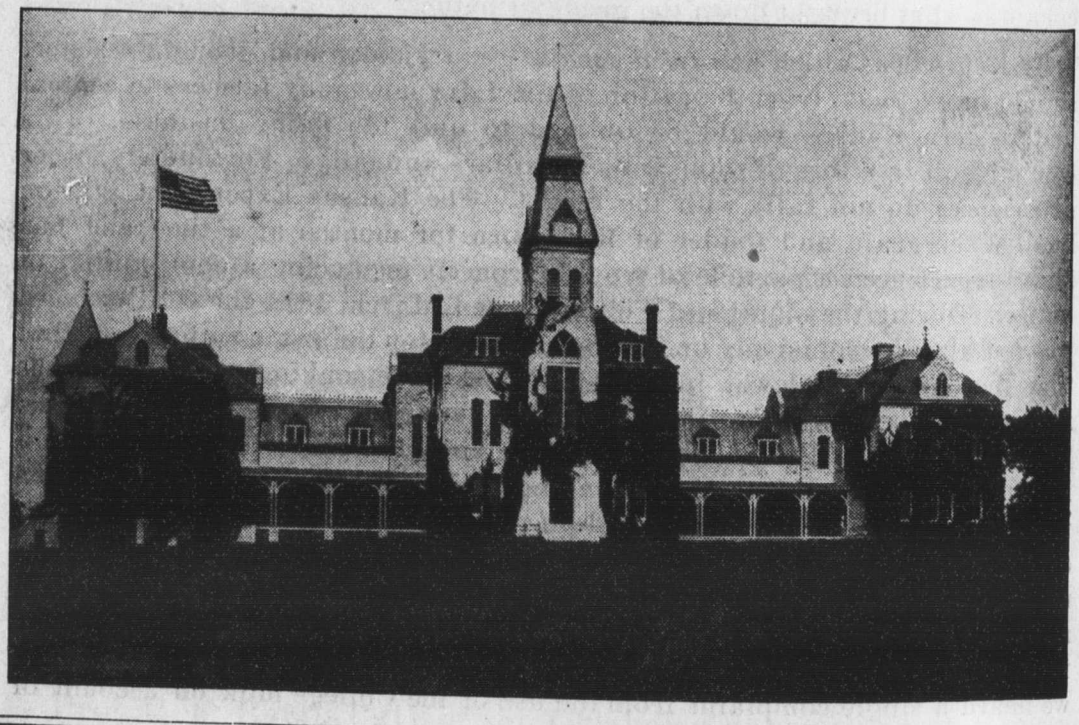

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Volume 27. Number 29.

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Editor-in-Chief, - - *Pres. E. R. Nichols*
Local Editor, - - *Prof. J. D. Walters*
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☆ ☆ ☆

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THE INDUSTRIALIST.

VOL. 27. MANHATTAN, KAN., APRIL 30, 1901. NO. 29

NO ICE IN THE WATER TANK.

DURING the last winter, tank heaters were used on the College farm to prevent the water from freezing and keep it at an agreeable temperature, both for the one hundred thirty calves in the experimental feeding lots and for the dairy cows. The water-supply is from the city water system, and is controlled in the tanks by float valves which keep them full all the time.

The heaters used were made by five different manufacturing companies, one kind being made of cast-iron while the rest are made of galvanized-iron. They are of various sizes, the larger ones burning more fuel and consequently better for large tanks. Yet they are all built on the same general principle, resembling a deep kettle provided with a removable grate four inches from the bottom. This sets right in the tank, the water coming within a few inches of the top, which is provided with openings for admission of fuel, controlling the draft, and the attachment of a short pipe through which the smoke passes. The draft is the same as in the air-tight heaters, the opening being at the top and carried below the grate by a sheet-iron pipe at the side of the heater. Coal was used for fuel and we found no difficulty in keeping up the fires. A box of coal was kept at each tank and thus required only a little time. By a little stirring and adding coal morning and evening the fire keeps all right. The ashes must be removed about once a week, and this is best accomplished by taking up the heater, pouring out the ashes, and then replacing it.

The fires were started November 10 and continued until April 1. During the extreme cold weather they were given extra attention, while when the weather was warm the fires were barely kept going. During this period of one hundred nineteen days the five heaters burned 9414 pounds of coal, or a daily average of 16 pounds for each heater. Figuring coal at $4 per ton, the average cost of one heater would be three cents per day. The larger

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VOL. 27. MANHATTAN, KAN., APRIL 30, 1901. NO. 29

NO ICE IN THE WATER TANK.

DURING the last winter, tank heaters were used on the College farm to prevent the water from freezing and keep it at an agreeable temperature, both for the one hundred thirty calves in the experimental feeding lots and for the dairy cows. The water-supply is from the city water system, and is controlled in the tanks by float valves which keep them full all the time.

The heaters used were made by five different manufacturing companies, one kind being made of cast-iron while the rest are made of galvanized-iron. They are of various sizes, the larger ones burning more fuel and consequently better for large tanks. Yet they are all built on the same general principle, resembling a deep kettle provided with a removable grate four inches from the bottom. This sets right in the tank, the water coming within a few inches of the top, which is provided with openings for admission of fuel, controlling the draft, and the attachment of a short pipe through which the smoke passes. The draft is the same as in the air-tight heaters, the opening being at the top and carried below the grate by a sheet-iron pipe at the side of the heater. Coal was used for fuel and we found no difficulty in keeping up the fires. A box of coal was kept at each tank and thus required only a little time. By a little stirring and adding coal morning and evening the fire keeps all right. The ashes must be removed about once a week, and this is best accomplished by taking up the heater, pouring out the ashes, and then replacing it.

The fires were started November 10 and continued until April 1. During the extreme cold weather they were given extra attention, while when the weather was warm the fires were barely kept going. During this period of one hundred nineteen days the five heaters burned 9414 pounds of coal, or a daily average of 16 pounds for each heater. Figuring coal at $4 per ton, the average cost of one heater would be three cents per day. The largest

heater used burned 18½ pounds of coal per day, while the smallest one used burned 13 pounds daily.

The time required to attend to a heater is about the same as that required to break the ice, and during the extreme cold it is almost impossible to keep the ice broken at all times. Thus the animals cannot drink when they are thirsty and will stand about the tank in the cold instead of being under the shed. If the best results are desired, either with the dairy cow or with the fattening steer, they must be comfortable. Even if the ice is broken they will often stand about the tank for some time before drinking, because the water is too cold, it is not palatable, it makes the teeth ache, chills the animal and retards digestion for a time.

On January 3 the ice in a tank without a heater was six inches thick while the water in the tanks provided with heaters was not frozen over. The stock like water at a temperature of from forty to fifty degrees Fahrenheit better than at a lower temperature. Everybody has certainly noticed how slowly an animal drinks ice-water, often opening its mouth and dropping it as if it were hot lead, and sipping away until it has only partially quenched its thirst and then stands shivering in the cold until the water taken into the stomach is warmed to the temperature of the body.

In the winter we had been watering the horses at a tank without a heater for some time, then watered at a tank provided with a heater. They seemed to like the water better and would drink more. With all animals it is always well to keep the water in the most palatable condition, because they will drink more, and a good quanity of water is required to carry off the waste material of the body and keep the animal in good health.

Even when laying aside the hygienic phase of the question and considering it in dollars and cents, does it not seem reasonable to suppose that it is better economy to furnish the heat that is required to raise water to a certain temperature with coal at a cost of $4 per ton than with corn at a cost of $10 per ton?

O. H. ELLING.

Professors Willard and Roberts went to Harper county Saturday evening to look over the condition of the forage-grass experiments in that section, which are being conducted by the Experiment Station here, in connection with the Department of Agriculture at Washington.

THE ADVISORY COMMITTEE OF OUR YOUNG MEN'S CHRISTIAN ASSOCIATION.

IN ORDER that the reader may understand the purpose of the advisory committee of our Young Men's Christian Association and see clearly what is expected of the committee, it will be necessary to give a brief sketch of the history of the association and set forth some of the reasons why the committee has been brought into existence.

Our association was organized in November of 1885. Its membership increased and the work which the association undertakes to accomplish had become so great by the spring of 1898 that it was too much to expect as volunteer work from the officers of the association. Accordingly, the executive committee, which consists of the five officers of the association, was authorized to employ a general secretary and provide funds for his payment.

For three successive years the writer of this sketch has been employed as general secretary of the association, and he can say without hesitancy that the various executive committees under whose direction he has worked have been composed of good, earnest students, young men who have had high ideals and have done all in their power to enlist the co-operation of the members of the Faculty, Board of Regents, and friends of the College. It is no more than fair to say that, considering the fact that the executive committees have been composed of undergraduates, they have recieved fully as substantial backing as could be reasonably expected, especially from the members of the Faculty, nearly all of whom contribute liberally to the support of the association. But in order that the association may fully accomplish the work for which it has been organized, it must have more perfect co-operation of the Faculty, Board of Regents, and the general public, and as a means to this end the association has recently inserted an article in the constitution which reads as follows:

ARTICLE V. ADVISORY COMMITTEE.

SECTION 1. *Advisory Committee Defined.* There shall be an advisory committee of nine members—the president of the association, two other student members of the association, and six members from the Faculty, alumni or business men interested in the work. Only members of evangelical churches shall be members of this committee.

SEC. 2. *How Chosen.* The members of this committee, with the exception of the president of the association, shall be nominated by the nominating committee and elected by the association at its annual election.

SEC. 3. *Organization and Duties.* The advisory committee shall meet as soon as practicable after the election to choose a chairman and secretary of the committee, and to employ a general secretary and take action upon the budget of expense submitted by the finance committee for the ensuing year. The committee shall also assist the finance committee to provide funds for the execution of the work of the association and shall from time to time render such assistance and counsel as the association may require. Meetings of the advisory committee may be called by the chairman at any time or at the request of three members of the committee.

SEC. 4. *Employment of General Secretary.* The advisory committee shall make a contract with the general secretary stipulating his salary, term of office, and duty.

SEC. 5. *Vacancies.* The advisory committee shall have power to fill all vacancies that occur in this committee during the year.

SEC. 6. *First Advisory Committee.* A special election shall be held during the spring term of 1901 for the election of the first advisory committee.

The committee provided for in the above article of our constitution was elected Saturday, April 13, and consists of the following persons: Professors W. A. McKeever, D. H. Otis and Benj. F. Remick from the Faculty, Messrs. John Coons and M. D. Snodgrass from the town, Mr. J. M. Westgate from the alumni, R. W. DeArmond and J. A. Craik, together with A. H. Leidigh, the president of the association, from the student element of the committee. There is no question but that with an advisory committee composed of such strong and representative men as the above our association work will be much more effective and receive more general support from the students, professors, and friends of the College.

S. J. ADAMS.

The plantation of pines on the old college farm bid fair to add beauty to the landscape the coming season. They are now above the nurse crop of artemisia.

The April number of the *Dairy Age*, published in Beloit, Kan., contains a six-column write-up of the dairy school of this College as seen by the editor, who spent a day at Manhattan in March. He says: "We had visited the College at other times and taken the same tramp, but never before have we found so much that interested us. We wish that every Kansas farmer, with his boys and girls, might visit the College for just one day. There is so much to be learned and seen there that will serve as an inspiration to better work on the farm, greater profits, and more pleasure and comfort."

SOME FAMILIAR ECONOMIC PLANTS.

(Continued from page 328.)

Ligustrum vulgare. Privet. Oleaceae. A European shrub often used for hedges.

Lilium. Lilies. Liliaceae. Ornamental herbs with scaly bulbs. There are numerous species in cultivation. The tiger and eastern lilies are types. Many so-called lilies belong to different genera, or even different families, such as the water lily and calla lily.

Linum usitatissimum. Flax. Linaceae. Fibre of stem used to make linen cloth. The oil expressed from the seed is linseed-oil and the residue is linseed-meal or oil meal used as a stock-feed.

Liriodendron Tulipifera. Tulip-tree. Magnoliaceae. A large tree of the Southern States, the wood of which is the so-called poplar used by cabinet makers.

Lolium perenne. Perennial Rye-grass. Gramineae. A European grass used for pasture. One of the first grasses to be cultivated for this purpose. *L. Italicum*, a variety of this, is the Italian Rye-grass. *L. temulentum*, a weed, is supposed to be the tares of the scripture.

Lonicera. Honey-suckles. Caprifoliaceae. Several species cultivated for ornament.

Lupinus. Lupines. Leguminosae. Several species grown for fodder in Europe. Not much used in this country.

Lycopersicum esculentum. Tomato. Solanaceae. From tropical America.

Maclura aurantiaca. Osage orange. Urticaceae. Used for hedges. Native of Texas.

Magnolia. Magnoliaceae. Several species of Magnolias are cultivated for ornament, especially in the South.

Mangifera Indica. Mango. Anacardiaceae. A tree of South Asia now extensively cultivated in the tropics and somewhat in South Florida. Fruit edible, about three inches long, more or less flattened, with a single large stone covered with a tow-like fibre.

Manihot utilissima. Cassava. Euphorbiaceae. A Brazilian shrub with fleshy roots which furnishes a starchy food much used in the American tropics. A prepared form comes to our market under the name of tapioca.

Maranta arundinacea. Arrow-root. Scitamineae. The starchy tubers are used as food and the production of a fine quality of starch. Tropical America.

Medicago sativa. Alfalfa. Leguminosae. An important forage plant. Called also lucerne. Other species are used, as *M. lupulina*, black medick or none-such. Europe.

Melilotus. Sweet clover. Leguminosae. The white form, *M. alba*, is also called Bokhara clover. It is an excellent bee plant and is more or less used as forage. Europe.

Mentha Piperita. Peppermint. Labiatae. The volatile oil is procured by distilling the leaves. *M. Pulegium* in a similar manner produces Pennyroyal.

Morus. Mulberries. Urticaceae. Small trees bearing edible fruit. *M. nigra*, the black mulberry of Asia Minor, is cultivated in Europe. *M. rubra*, the red mulberry, a native of eastern United States, is the common species in this country. *M. alba*, white mulberry, of China, is used as a food for silkworms.

Musa sapientum. Banana. Scitamineae. Probably originated in tropical Asia but now widely cultivated in all tropics. An herbaceous palm-like tree whose fruit is edible both raw and cooked. A closely allied species is called Plantain. The fruit is used cooked. In tropical Africa it is the most important staple food of that region. Another species, *M. textilis*, is the manila hemp of the Philippines, the fiber being obtained from the stem.

Myosotis palustris. Forget-me-not. Borraginaceae.

Myristica fragrans. Nutmeg. Myristicaceae. A tree of the East Indies. The nutmeg is the single large seed of a fleshy fruit. Around the seed is a growth called mace. Both are used as a spice.

Narcissus. Iridaceae. Includes the daffodils, *N. Pseudo-Narcissus*; the jonquils, *N. Jonquilla* and several other species of bulbous plants cultivated for ornament.

Nelumbium speciosum. Sacred Lotus. Nymphaeaceae. Native of East Indies. This and other species are cultivated for ornament.

Nerium Oleander. Oleander. Apocynaceae.

Nicotiana Tabacum. Tobacco. Solanaceae. Probably originated on the Mexican Plateau but was widely cultivated in America at the time of the discovery. Now grown over the warmer parts of the world. Certain other species of the genus are cultivated for ornament.

Nymphaea. White Water-lilies. Nymphaeaceae.

Olea Europaea. Olive. Oleaceae. Extensively cultivated in

the Mediterranean region, where it is native. Olive oil is obtained from the flesh of the fruit. The green fruits are pickled.

Opuntia Tuna. Prickly Pear. Cactaceae. Occurs in Mexico and adjacent region. Used for hedges, as are other species of cacti. When the spines are singed off it furnishes fodder for cattle. The juicy fruits are eaten. *O. cochinellifera* and other species are cultivated for raising cochineal insects.

Oryza sativa. Rice. Gramineae A grain probably of Asiatic origin, much grown in warm regions for food. It is a marsh plant, about the size of oats.

Panicum. Gramineae. A large genus of grasses, some of which are cultivated. *P. miliaceum* is the broom-corn millet. Barnyard or Japanese millets are derived from *P. Crus-galli.* Other species are grown in India and China for the seed, which is used as a grain. *P. maximum* is Guinea Grass, a tropical forage plant.

Panax Ginseng. Ginseng. Araliaceae. The well known Chinese drug, the root of which is used. The American Ginseng is *P. quinquefolium.*

Papaver somniferum. Opium Poppy. Papaveraceae. Much grown in India and Asia Minor. Opium is the dried milky juice obtained from incisions in the green capsules. Morphine is the active alkaloid. Other species are cultivated for ornament.

Papyrus antiquorum. Paper reed. Cyperaceae. The plant which yielded the paper used by the ancient Egyptians.

Pastinaca sativa. Parsnip. Umbelliferae. A native of Europe. The root is used as a vegetable.

Pelargonium. Geraniums. Geraniaceae. Includes several species, mostly from South Africa, cultivated for ornament.

Peonia officinalis. Peony. Ranunculaceae.

Persea gratissima. Avocado Pear. Lauraceae. A tree of tropical America whose fruit, also called alligator pear, is highly esteemed by those who have become accustomed to it. The fruit is oval, about six inches long, with a single large seed. The flesh is eaten as a salad with condiments.

Petunia violacea. Common Petunia. Solanaceae. Annual ornamentals from South America.

Phaseolus. Beans. Leguminosae. *P. vulgaris,* the kidney bean, including the various forms of pole beans, string beans, and bush beans; *P. lunatus,* the lima bean; and *P. multiflorus* the scarlet runner, probably all originated in South America.

A. S. HITCHCOCK.

THE INDUSTRIALIST.

Published weekly during the College year by the Printing Department of the

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Manhattan, Kansas.

PRES. E. R. NICHOLS.....Editor-in-Chief
PROF. J. D. WALTERS.....Local Editor
PROF. J. T. WILLARD.....Alumni Editor

LOCAL NOTES.

Mid-term examinations May 4.

The *Nationalist* publishes the constitution of the Manhattan Library Association and Institute.

The next regular monthly sale of the Manhattan Live-stock Association will be held on Saturday, May 4.

Professor Metcalf is to be one of the judges in the State oratorical contest, to be held at Chapman, Dickinson county, May 4.

Professor Weida spent Saturday and Sunday in Lawrence, where he joined Mrs. Weida and children, who are visiting there.

The graduating exercises of the Manhattan city schools will take place on the evening of May 24. The class will number about twenty-five.

A fine lot of young spruces and pines has been placed in the nursery rows of the arboretum. The stock came from D. Hill, Dundee, Ill.

The Veterinary Department is preparing ten thousand doses of blackleg vaccine per week for distribution among the stockmen and farmers of Kansas.

The Horticultural Department is resodding the parapets about the south wing of the Main building and the south and west sides of Domestic Science Hall.

The forest planting at the old College farm is being extended this spring, and vacancies are being filled up. The Osage orange and the Russian mulberry are being most largely planted.

As the INDUSTRIALIST goes to the pressroom early on Mondays it cannot give the outcome of the baseball game in the Manhattan athletic park, between Washburn College and our own boys, yesterday.

The Botanical Department has just shipped two hundred pounds of buffalo-grass sod to Professor Hitchcock, of the Division of Agrostology in Washington, for experimentation in New Jersey.

The discs and harrows have been busy lately preparing soil mulch for orchards, fields, and gardens. The heavy and frequent rains have packed the ground and made the early use of these tools a necessity.

The little muslin-and-paper envelopes which the plum trees are bearing cover blossoms which have been artificially pollinated. The best native, Japanese and European plums are being used in these experiments.

A large company was attracted to the river on Saturday afternoon to witness the first excursion of the steamer "Princess" up the river, when the College band accepted an invitation to go aboard, furnishing delightful music on the trip.

The members of the senior class of the Junction City high school made their annual visit to the College Tuesday, accompanied by their teachers. The young people to the number of twenty-five arrived on the morning plug and remained throughout the day.

The baseball game at the Manhattan athletic park, between the nines of the K. U. and this College, resulted in a hard-won victory for the University. The score stood 10:6. A large audience had gathered to see the game, the College band was present, escorting the teams to the park, and the weather was perfect.

The Department of Botany is experimenting on the renovation of worn-out pasture lands by means of Bromus Inermis. Sod mixtures of the Brome grass with native prairie sod are being tried in the College plots, as well as transplantings of the Bromus into the midst of the native grasses in the pasture lands of the College.

Mrs. Merell, the financial agent of the Home for the Friendless, at Leavenworth, visited College last week on her annual tour through the State. On Wednesday morning she spoke to the students in chapel about the work of that institution. The voluntary contributions by members of the College must have been over thirty dollars.

When the Junction City high school boys were here last week they invited the College freshmen to play them a game of baseball at Junction City, on Saturday, promising to treat and entertain any of the visiting students "real white." As a result a baker's dozen of our first-year boys went out there on Saturday afternoon. We have not heard of the score, as yet.

Robt. O. Deming, of the Deming Investment Company, of Oswego, Kan., writes to the College as follows: "Have you in mind some young man who has graduated and who is desirous of securing a salaried position for farm work? I have a large farm of eleven hundred acres, all under cultivation, near this place, and on which I am carrying some three hundred head of stock, several head of hogs, and some fifty head of horse and mule colts. It is in the hands of an experienced farmer, but I believe that it might be an advantage to have associated with him a young man who has secured the benefit of the educational privileges bestowed by your institution."

The membership of the College band this term is as follows: Prof. A. B. Brown, director; R. H. Brown, leader; Fred Walters, drum-major; E. M. Amos, Del Akin, G. W. Bemis, W. W. Carlson, E. S. Dewey, V. M. Emmert, Fred F. Fockele, F. L. Grimm, H. P. Hess, Ed. W. House, B. R. Jackson, A. S. Johnson, C. B. Johnson, H. Matthews, V. Matthews, C. M. Miller, W. Purdy, Claire Legere, H. P. Richards, A. L. Risley, C. F. Smith, A. J. Rhodes, C. B. Swift, G. W. Skow, E. R. Secrest, John Vesecky, Frank H. Walters, George Wolf, and H. Spuhler.

The Kansas State Agricultural College has just received a very fine Poland-China boar as a donation from A. M. Jordan, proprietor of Chinquapin Farm, Alma, Kan. This hog was sired by one of the best sons of Missouri's Black Chief. The latter was sold to E. H. Ware, an Illinois breeder, for $1000. The granddam of this pig was Chief Perfection, also a $1000 animal. Every ancestor of this pig is reported as being a first-class individual, and at the head of the College herd he will doubtless be the sire of some of the best Poland-China pigs in the United States. The Agricultural College greatly appreciates Mr. Jordan's generosity and believes he will be richly rewarded by the advertisement that will come from having so valuable a hog where it can be seen by the thirteen hundred students and numerous visitors. This makes the fourth donation to the Kansas Agricultural College from enterprising Poland-China breeders of Kansas. Besides hogs, the Kansas Agricultural College has been the recipient of three pure-blood Herefords, one Shorthorn, and one Aberdeen-Angus.

Mr. J. G. Harey, '99, writes to Professor Walters, from Minaca, Mexico, where he is employed as an agricultural expert for the Chihuahua & Pacific railroad: "I am in Chihuahua now, and have been for a week, waiting for some machinery to arrive. One day is just as good as another here and 'menana' (to-morrow) is a little better. But they tell me it is no use to worry—it is part of the regular program here, so I am taking it as easily as I can. Minaca is the western terminus of our road and is nearer where our work is, so I have my headquarters there. Planting began here about a week ago, but it takes more than a month for them to finish on the large haciendos. They mark their land off both ways, then one man scrapes the loose dirt off with a hoe, the second punches a hole with a bar from six to twelve inches deep, and a third, a boy, drops four grains in the hole and pokes the hole full of dirt. All the work is done in about this way, but as labor is getting scarce they are anxious to get implements to save the labor. This will help us a great deal. The people are quite anxious to make improvements, but are very cautious. It stands us in hand to be very careful and not make any mistakes with them, for if we do not gain their confidence we can do very little with them. We are furnishing seed and telling them how to plant as a start. They are very hospitable, and the better class live very well. I am well pleased with the situation and know I am getting some

valuable experience. I think the jerked beef and tortillas agree with me first rate, but I cannot eat chilli—pepper sauce—that they are all so fond of; it is too hot for me. They are all fond of liquor and cigarettes, and they shake their heads when I refuse; also when I ask to wash my hands. I need to know the language very much, but I will soon learn enough to get along. The climate is delightful, only a little windy at times. We are at about seven thousand feet elevation at Minaca, one hundred twenty-five miles west of Chihuahua. I think of College rather intensely occasionally, but I have plenty to keep me engaged."

The following biographical item of ex-President George T. Fairchild, from the pen of Hon. W. R Thomas of Denver, appeared in the *Daily Rocky Mountain News* of April 22, and shows with what esteem the deceased was regarded in our neighboring state: "The recent death of George T. Fairchild, for many years president of the Agricultural College of Kansas, has been a cause of regret to the many graduates of that institution who are scattered over Colorado and other mountain states. President Fairchild was a born educator. He was a native of Ohio and received his education at Oberlin. He began his career as instructor at the Michigan Agricultural College, and a year later was made professor of English literature. In 1879 he was chosen president of the State Agricultural College of Kansas, where he remained until 1897. His services to the institution during this period were such as to place it in the first rank of industrial colleges. His idea was that the College should be a model school for the education of young men and women who were to go back to the farm or workshop, not only to perform manual labor, but to live complete lives and to develop and honor their calling. In accordance with this high ideal he conducted the institution, and made it an influential factor in the growth of the intelligence and industry of Kansas. In 1897, when politicians attempted to interfere with the course of instruction in the College, President Fairchild retired. After a much-needed rest and the publication of a book entitled "Rural Wealth and Welfare," he accepted the chair of English literature in Berea College, Kentucky, which position he held at the time of his death. It will always be a matter of regret that President Fairchild was not left to complete his life at the institution he did so much to create."

ALUMNI AND FORMER STUDENTS.

Grace L. Wonsetler, '85, was graduated from the Hahnemann Medical College, Chicago, Ill., April 25, 1901, and remembered her alma mater with an invitation to the commencement exercises.

S. I. Borton, '90, who has been doing postgraduate work in horticulture and entomology and helping with the work in the Horticultural Department, left Monday for Rocky Ford, Colo., where he enters the employ of the American Beet Sugar Company.

A. L. Frowe, '98, and A. G. Wilson, '99, were recent visitors at the College.

Prof. G. W. Owens, '99, of the Tuskegee Normal and Industrial Institute, Tuskegee, Ala., sends the Farm Department a well-prepared chart of selected and condensed information concerning the principal breeds of cattle in the United States, which he has been using in his classes in agriculture.

J. A. Conover, '98, writes from Kearney, Neb., that he has recently moved one hundred twenty milch cows into the new large barn constructed for the dairy herd. The daily yield of milk amounts to twenty-eight hundred pounds (three hundred twenty-five gallons). Mr. Conover has just recently returned from a trip to New York, where he has been purchasing some Holstein cattle for Watson's ranch.

The Kansas City Fruit and Produce Exchange, at its meeting to-day, by a unanimous vote, recommended W. H. Phipps ['95], of Kansas City, for the position of dairy commissioner of Missouri. This is a new position and was created by the assembly at the session last winter. The office is in connection with the State University and experiment station at Columbia. Mr. Phipps was at one time an instructor at the Kansas Agricultural College, at Manhattan.—*Kansas City Star.*

Every horticulturist will welcome the new book on Plums and Plum Culture, written by Prof. F. A. Waugh ['91] and just published by the Orange Judd Company. Professor Waugh has made a study of plums for many years. His first introduction to the plum was when, as a boy on his father's farm in McPherson county, Kansas, the plum thickets among the sand-hills of the Arkansas were visited for a supply of the fruit for the pioneer family. The pioneers of central and western Kansas enjoyed this fruit and could never cease being astonished at the prodigious crops borne by the little bushes. These have grown and fruited for ages—nobody knows how long. When in 1541-42, Coronado and his followers visited the land that is now Kansas they recorded their delight at the abundance of this fruit. But Professor Waugh's book has little to do with historical reminiscences. The Professor is an investigator and he has found out about all that anybody has known about plums, and has developed a lot of new information on his own account. The book is exceedingly practical in its scope, and its arrangement is such as to make it a complete reference book on the plum. It is also an interesting book to read. It answers many questions which have puzzled the horticulturist. Not the least of these grows out of the fact that many varieties of plums are sterile to their own pollen. This subject is admirably treated, and tables are given showing which varieties may be mated to advantage. A diagram showing the relative dates of blooming should be valuable to all who are in danger from late frosts. This book contains three hundred seventy-one pages, is beautifully printed, finely illustrated, and bound in cloth.—*Kansas Farmer.*

TERMS AND VACATIONS.

Fall Term, 1901, Thirteen Weeks.

WEDNESDAY, SEPTEMBER 18.—Examination for admission, at 9 A.M.
THURSDAY, SEPTEMBER 19.—College year begins.
TUESDAY, SEPTEMBER 24.—Short course in domestic science begins.
SATURDAY, NOVEMBER 2.—Examination.
THURSDAY AND FRIDAY, DECEMBER 19, 20.—Examination at close of term.

Winter Term, 1902, Twelve Weeks.

MONDAY, JANUARY 6.—Examination for admission, at 9 A.M.
TUESDAY, JANUARY 7.—Winter term begins.
TUESDAY, JANUARY 7.—Short courses in agriculture, horticulture and dairying begin.
SATURDAY, FEBRUARY 15.—Examination.
THURSDAY AND FRIDAY, MARCH 27, 28.—Examination at close of term.

Spring Term, 1902, Eleven Weeks.

MONDAY, MARCH 31.—Examination for admission, at 9 A.M.
TUESDAY, APRIL 1.—Spring term begins.
SATURDAY, MAY 10.—Examination.
TUESDAY AND WEDNESDAY, JUNE 17, 18.—Examination at close of year.
JUNE 15 TO 19.—Exercises of commencement week.
THURSDAY, JUNE 19, AT 10 A.M.—Commencement.
JUNE 20 TO SEPTEMBER 17.—Summer vacation.

Fall Term, 1902.

WEDNESDAY, SEPTEMBER 17.—Examination for admission, at 9 A.M.
THURSDAY, SEPTEMBER 18.—College year begins.

BOARD OF REGENTS.

HON. J. S. McDOWELL (1905),* *President*,
Smith Center, Smith county.

HON. F. D. COBURN (1905), *Vice-President*,
Kansas City, Wyandotte county.

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HON. S. J. STEWART (1905),
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PRES. E. R. NICHOLS (*ex-officio*), *Secretary*.
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MISS LORENA E. CLEMONS, *Assistant Secretary*.
Manhattan.

*Term Expires.

KANSAS STATE AGRICULTURAL COLLEGE

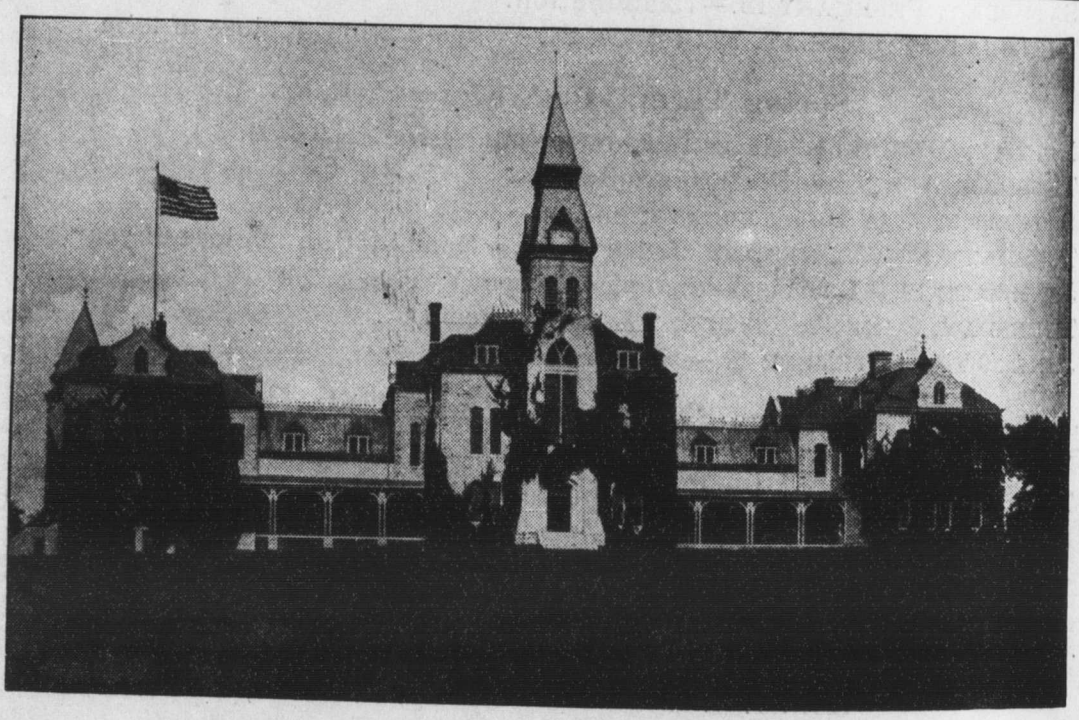
FIVE COURSES OF STUDY.....

Each complete in itself and leading to the degree of Bachelor of Science, are as follows:

1—General Science
2—Agriculture
3—Domestic Science
4—Mechanical Engineering
5—Electrical Engineering

This Institution

is supported by the General Government and by the State of Kansas, and is designed, by its instruction, to promote the liberal and practical education of the industrial classes in the several pursuits of life.



COLLEGE classes are open to both sexes. Tuition is free in all departments. There is no charge for laboratory supplies. Room and board can be had at very reasonable rates. The yearly expenses, exclusive of clothes and traveling expenses, are between $100 and $200. All College laboratories, shops and class rooms are well supplied with needful apparatus and appliances. Practical application is made of the principles learned in the study of the sciences, and thus the College is made a school of applied science.

Domestic Science.

A full course in Domestic Science now in successful operation. The work in the Department of Domestic Science forms an interesting part of the instruction given in the women's course. It is of great practical and disciplinary value.

FOUR SHORT COURSES

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THE INDUSTRIALIST.

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EXPERIMENTS IN THE IMPROVEMENT OF PASTURE AND RANGE GRASSES.

THE Kansas Experiment Station, in co-operation with the division of agrostology of the U. S. Department of Agriculture, has inaugurated a series of experiments in Harper county which it is hoped will yield valuable information. The experiments are located on the farms of Mr. H. B. Waldron, of Anthony, whose estate of over twelve thousand acres lies chiefly in ranges seven and eight, and just north of the Oklahoma line. Mr. Waldron is a young man of much enterprise and public spirit and the location of these experiments upon his farms is due to his generous tender of the use of cultivated and pasture lands desired for the experiments as well as the labor and use of tools incident thereto. It may be of interest to state also that as the result of a similar offer the division of forestry is making extensive experiments in tree culture on Mr. Waldron's farms.

The experiments with grasses fall into two distinct series, the first being on cultivated land with a few of the grasses and other forage plants most likely to succeed in a region of limited rainfall, and the second upon native sod which has been injured by excessive pasturing. The first series is not expected to lead to as valuable results as the second. No cultivated grasses have gone through the natural selection of thousands of years of growth in the region. The native grasses are preeminently adapted to drought resistance, because they are the ones that have survived through ages of contest with adverse conditions, and we can scarcely hope to find species to introduce that will equal them. Certainly we cannot plant with any prospect of success any of the grasses that are accustomed to a humid climate. Any introduction of value will be from a region of similar climatic conditions, or will at least be able to adapt itself to adverse conditions in respect to moisture. On the other hand, the native sod produces but a scanty crop, and seven or eight acres are necessary for the pastur-

age of a single animal. The temptation to overstocking the range is very great, and much of it has become seriously impaired throughout the western part of the State. If this can in some way be renovated, and perhaps even be brought to a point superior to its original condition, and at an outlay that is not prohibitive, thousands of dollars will be added to the value of every one of our western counties.

In the series of experiments in the establishment of grasses on cultivated land the following seeds have been sown: Tall meadow oat-grass, slender wheat-grass, perennial rye-grass, sainfoin, reed fescue, a mixture of reed fescue, redtop and orchard-grass, western wheat-grass, "Colorado grass," awnless brome-grass, alfalfa. In addition to these a plat has been planted with roots of Bermuda grass. All of these are true grasses except the alfalfa and the sainfoin, which are legumes. Alfalfa has not been grown much in that region and the importance of leguminous forage is such as to make further experiment with it highly desirable, and several acres have been seeded, while an acre or less only has been given to most of the other species. Sainfoin is a legume much grown in Europe, but less known in this country. It is put on trial here because of its probable drought-resisting power.

In the experiments in the renovation of worn-out pasture, disking the sod forms the fundamental treatment. This procedure seems to owe its origin to an observation made at this Experiment Station by Prof. C. C. Georgeson, then professor of agriculture here, and described by him in Bulletin No. 48, December, 1894, the observation having been made two years previously. He wrote as follows:

"The prairie pasture on the upper farm had been gradually failing. Owing to a lack of pasture for the cattle, we had been compelled to keep the herd on it longer than ought to have been the case. Sunflowers and bull nettles began to spring up all over it, while the native grasses seemed to be dying. Under these conditions, it seemed desirable to attempt to establish some tame grasses on this prairie land. Accordingly, the surface was cut up with a disk harrow, weighted and driven over it in several directions, and a mixture of perennial grasses, consisting of orchard-grass, timothy, redtop, meadow fescue, blue-grass, with some clover and alfalfa, was sown broadcast on the loosened surface, harrowed in, and rolled. A timely rain caused the seed to germi-

nate promptly, and in three weeks there was a fine show of green from this seed nearly all over the field. The tame grass appeared to have obtained a splendid foot-hold, but by the middle of June it became apparent that the prairie grass was disposed to dispute with the tame grasses for the supremacy. It came in thick and grew vigorously and the weak seedling grass began to give way. By September the prairie grass had obtained complete mastery, now standing a foot high and very close in the ground, and none of the weeds which were common in the pasture the previous year were now present. The following year the prairie afforded as much pasture as it probably ever did. This, it appears to the writer, affords a lesson in renovating native pastures. Take off the stock, scratch the surface early in the spring, and leave it to itself. I believe our farmers in this section of Kansas frequently make a mistake when they attempt to substitute tame grasses for the native pastures. Tame grasses may afford more palatable feed and they usually yield a little feed earlier than the prairie, but they cannot stand the hardships of drought as the prairie grass can, nor do they, with the same treatment as permanent pasture, yield any more or even as much feed. The prairie grasses are here because they are suited to the conditions, and if we avoid overstocking they will last indefinitely and afford feed even in the driest seasons."

Treatment similar to that described above has since been tried elsewhere in experiments conducted with success by the Department of Agriculture. The object is not to establish tame grasses permanently, but to enable the native grasses which are adapted to the region to recover and resume ascendancy. The temporary growth of the cultivated grass serves to keep down weeds until the native grasses start. In the Harper county experiments the pasture chosen is one that is near the farm buildings, and badly worn out. It has been fenced so as to keep stock off at present, and for comparison a part is left without treatment other than this exclusion of stock. The remainder has been disked thoroughly. The natural toughness of the sod combined with the tramping of stock had rendered the sod very hard. Some parts were much harder than others. Most of the land was double disked twice, and then the seed put in with a disk drill. This loosened a good deal of the surface to a depth of about two inches. It did not, however, cut off all of the sod, but left it in

little tufts surrounded by the loosened earth. The following seeds were sown on the several plats included in this series: Tall meadow oat-grass, awnless brome-grass, rescue-grass, oats, millet, alfalfa, and sweet clover. One plat was left without any seed being sown on it after disking. The sowing of alfalfa and sweet clover is with the hope that they may become established and remain a permanent addition to the pasture, thus increasing its value. The trial with oats and millet is with the thought that in so far as the grasses sown serve merely to prevent growth of weeds, it may be possible to accomplish the purpose with these cheap sorts, which are readily available to all farmers, as well as by the use of expensive grasses.

Another line of experimentation which is being tried aims toward the better conservation of the rainfall, and consequent increased product of grass. Furrows have been plowed at intervals following the slope of the land so as to keep the bottoms of them as nearly level as practicable. These furrows are short so as not to allow water collecting in them to run very far, even if they are not level. They are expected to collect water which would otherwise run off, and which by absorption each side will serve to sub-irrigate the grass. It is a matter of common observation that a hard-tramped pasture will shed water almost like a roof. This treatment by plowing furrows has been tried by the Department of Agriculture in some experiments in Texas with very gratifying results, and the outcome with us will be awaited with much interest.

In connection with the experiments, meteorological observations as to rainfall and temperature will be taken, mechanical analyses of the soil will be made, and probably determinations of soil moisture. While the present articles of agreement between the Experiment Station and the division of agrostology of the Department of Agriculture extend only to July 1, 1901, it is expected that they will be renewed, and the experiments continued for at least three years. J. T. WILLARD.

The members of the winter-term class in theme writing have presented Miss Rupp, their teacher in this study, with a bound volume of their written themes. The volume is bound in leather with a gold title and contains a dedication by the class.

SOME FAMILIAR ECONOMIC PLANTS.

(Continued from page 363.)

Phleum pratense. Timothy. Gramineae. Native of Europe. Early cultivated in this country as a meadow grass. Also called Herd's grass.

Phlox Drummondii. Phlox. Polemoniaceae. Annual ornamentals from Texas.

Phoenix dactylifera. Date Palm. Palmae. Native of the arid regions of North Africa. Fruit used as a food by the inhabitants of that region. Comes to our markets as a confection.

Pimenta officinalis. Allspice. Myrtaceae. The fruit of this tropical American tree is used as a spice.

Pinus. Pines. Coniferae. Important timber trees. Certain species, such as the long leaved pine of the Southern States, produce turpentine by distillation of the crude sap. The residue is resin. Pine tar is obtained by the destructive distillation of the wood. Pitch is the concentrated tar. Some species, such as *P. edulis*, furnish edible seeds or nuts called piñons.

Piper nigrum. Black Pepper. Piperaceae. A woody vine whose small spherical fruits are ground for use as a spice. *P. Cubeba* produces the drug known as cubebs.

Pisum sativum. Garden pea. Leguminosae.

Platanus. Sycamores. Platanaceae. The American species, *P. occidentalis*, is called sycamore in this country. In Europe the trees of this genus are called plane-trees. The sycamore of Europe is *Acer Pseudo-Platanus.* The sycamore of the Bible is a kind of fig.

Poa. Blue-grass. Gramineae. Several species cultivated as meadow or pasture grasses.

Polianthes tuberosa. Tuberose. Amaryllidaceae. An ornamental from Mexico. The name refers to the tuberous root-stock and should be pronounced tube-rose.

Populus. Poplars. Salicaceae. Includes the cottonwood, the Lombardy poplar, white poplar, and the aspens. The yellow poplar of the cabinet-maker comes from *Liriodendron Tulipifera*, or tulip poplar, which is not related to the true poplar.

Prunus. Plums and Cherries. Rosaceae. An important genus of fruit-trees. *P. domestica* is the original of the European varieties and those cultivated in California. The plums cultivated in the eastern United States come from *P. Americana*, *P. hortulana*,

and *P. angustifolia*, all native species. The Japanese plum is *P. triflora*. The sour cherries (Morello and Early Richmond) come from *P. Cerasus*, of Europe. The sweet cherries from *P. Avium*, also of Europe. The peach is *P. Persica*. The apricot is *P. Armeniaca*. The nectarine is a variety of the peach. The almond is *P. Amygdalus*, bearing a fruit similar to the peach but with scant flesh, the nuts of the market being the pits. Several other species are cultivated for ornament, the flowers often being double.

Psidium Guava. Guava. Myrtaceae. A small tropical American tree cultivated for the fruit, which is yellow and about the size and shape of a moderate-sized lemon. Grown in south Florida. Guava jelly is one of the products. *P. Cattleyanum* or Cattley guava is smaller and colored yellow or red.

Punica Granatum. Pomegranate. Lythraceae. A native of North Africa. Fruit the size of an apple, with a leathery rind, which on account of the tannin contained in some varieties is used to tan morrocco leather.

Pyrus. Apples. Rosaceae. The common apple comes from the European *P. Malus;* the crab-apples from *P. baccatus*, or hybrids of this and the preceeding. The pear is from *P. communis* of Europe, some, as the Kieffer, being hybrids with *P. Sinensis*, the Japan pear. The common quince is *P. Cydonia*. *P. Japonica*, the Japanese quince, is cultivated for ornament.

Quercus. Oaks. Cupuliferae. The various species furnish lumber and oak bark used for tanning. Cork is obtained from the bark of *Q. Suber* of Spain. Various parts of oaks, especially the galls caused by the sting of insects, are used for making ink and for dyeing.

Raphanus sativus. Radish. Cruciferae.

Rheum, Rhaponticum. Pie-plant. Polygonaceae. The petioles are used as a vegetable. The drug rhubarb comes from central Asia, the species being uncertain, although poorer grades are obtained from the preceding species.

Rhizophora Mangle. Mangrove. Rhizophoraceae. Common on tropical seashores. Rich in tannin, hence used for tanning.

Rhus. Anacardiaceae. Includes the poison ivy, the smoke tree and the Japanese tree from which the famous lacquer of that country is obtained.

Ribes. Saxifragaceae. Some of our garden gooseberries come from the European *R. Grossularia* and some from the native *R. oxy-*

canthoides. The red currant, *R. rubrum*, and the black currant, *R. nigrum*, are both from Europe. *R. aureum* of the Plains, the Missouri or Crandall currant, is cultivated for ornament.

Richardia Africana. Calla Lily. Araceae.

Ricinus communis. Castor Bean. Euphorbiaceae. Native of India. The seeds furnish castor-oil.

Roccella tinctoria. A lichen, from which litmus is obtained.

Rosa. Roses. Rosaceae. Numerous species cultivated for ornament. Attar of roses is a perfume obtained by distilling the petals.

Rubus. Rosaceae. The blackberry is *R. villosus*, a native. The European garden raspberry with red fruit is *R. Idaeus*, a native of that country. Our raspberries are natives here, *R. strigosus*, the red, and *R. occidentalis*, the black. The dewberry is *R. Canadensis.*

Saccharum officinarum. Sugar-cane. Gramineae. A large grass from tropical Asia, the juice of which produces sugar. Usually seedless and is propagated by cuttings.

Sagus. Palmae. Palms whose starchy pith furnishes sago. South Sea Islands.

Salix. Willows. Salicaceae. Some species as weeping willow, cultivated for ornament. Others, osiers, for making baskets from the twigs.

Secale cerale. Rye. Gramineae.

Setaria Italica. Millet. Gramineae. The fox-tail millets or Hungarian grass are cultivated for forage.

Solanum tuberosum. Potato. Solanaceae. A native of South America. The tubers are used for food and for the production of starch.

Sorghum vulgare. Sorghum. Gramineae. Thought by many botanists to be derived from Johnson grass. To the sorghums belong, besides the saccharine sorghums used for making molasses and for fodder, Kafir-corn, millo maize, Jerusalem corn, the Chinese millets, and broom corn. Some of these latter are cultivated for forage and some for the seed, which is used for food.

Spinacia oleracea. Spinach. Chenopodiaceae. Leaves used as a pot-herb. Native of western Asia.

Strychnos nux-vomica. Loganiaceae. A tree of southeastern Asia, bearing a fruit about the size of an orange. The flat seeds, called dog-buttons, contain the alkaloid strychnine. The extract is called nux-vomica.

Syringa vulgaris. Lilac. Oleaceae.

Thea viridis. Tea. Ternstroemiaceae. A shrub much grown in India, China, and neighboring countries, for the young leaves, which are used in the production of the beverage tea. Native probably of Assam. Young leaves gathered by hand and carried through a process of curing and curling, the different methods of which produce green and black teas, though the former is often colored artificially to suit the trade.

Theobroma Cacao. Cocoa-tree. Sterculiaceae. A small tree of the American tropics, bearing fleshy pods about eight inches long. The seeds furnish the cocoa, which is used as a beverage. Chocolate is a preparation of cocoa.

Tragopogon porrifolius. Salsify or Oyster Plant. Compositae. From Europe. Cultivated for the root, which is used as a vegetable.

Trifolium. Clovers. Leguminosae. Extensively cultivated as forage plants, the common ones being the red, mammoth, alsike, crimson, and white. The last is the shamrock of Ireland.

Triticum vulgare. Wheat. Gramineae. Soft wheats have less gluten and are suited to the manufacture of starch. Very hard wheats have so much gluten that bread made from them is too firm. They are used to make macaroni. Allied to the common wheat are the Emmers, some of which are sold in this country under the name of Speltz, and the true spelt, which was the common grain of the Roman Empire.

Tulipa Gesneriana. Tulip. Liliaceae.

Vaccinium macrocarpon. Cranberry. Ericaceae. A low bush, growing in bogs in eastern United States. This genus and the allied genus Gaylussacia furnish the huckleberries, whortleberries, and blueberries.

Vanilla aromatica. Vanilla. Orchidaceae. A climbing orchid of tropical America, whose pods furnish the flavoring extract.

Viburnum Opulus. Snowball. Caprifoliaceae. The wild form, a native of the northern parts of Europe and America, has the sterile flowers only on the margin of the inflorescence.

Vicia Faba. Field bean. Leguminosae. The common field or broad bean of Europe. Other species of *Vicia* are cultivated for forage and are called vetches.

Vigna Sinensis. Cowpea. Leguminosae. A useful forage plant of the Southern States. From Asia.

Viola. Violets. Violaceae. Includes the pansies, sweet or English violets, and the wild Johnny-jump-ups.

Viscum album. Mistletoe. Loranthaceae. A parasitic shrub growing upon trees. Frequently used for Christmas trimmings in Europe. Foliage evergreen and fruit a small, shining, white berry. The American mistletoe is *Phoradendron flavescens*, of the same family.

Vitis. Grapes. Vitaceae. The European wine grape is also cultivated in California. The grapes cultivated in eastern United States are derived from our native species. Raisins are dried grapes. The so-called currants of our markets are a variety of seedless raisins grown in Greece, and having been exported from Corinth were formerly called Corinths.

Zea Mays. Indian corn. Gramineae. Probably originated in Mexico. Includes dent, flint, sweet and pop varieties.

Zingiber officinale. Ginger. Scitamineae. Ginger is obtained from the fleshy rootstalks of an herbaceous plant much cultivated in tropical regions. Jamaica Ginger comes from Jamaica and other West India islands.

A. S. HITCHCOCK.

The mid-term examinations of last Saturday revealed the usual state of things—good work and poor work. Some of the students know how to use their time; they have the perseverance and self-control necessary to success in College, while others are willing to work but are too weak in character and too untrained of habit to succeed. There is much difference in talents, but there is more difference in energy and stamina. The College is an excellent training school for the development of character, but it can not undo in one or two short years the previously acquired habits of carelessness and shiftlessness of all the hundreds of young men and women who are entrusted to its care. As a whole, our students compare very favorably with those of other institutions; there is no secret society foolery here; there are no social "dress parades," no costly excursions, no time-consuming oratorios, no contests of any kind, yet, among the thousand students present there are always some who do not know how to use the most precious wealth of healthy and vigorous youth—opportunity and time. There are always a number of failures.

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PRES. E. R. NICHOLS.....Editor-in-Chief
PROF. J. D. WALTERS.....Local Editor
PROF. J. T. WILLARD.....Alumni Editor

LOCAL NOTES.

The alfalfa fields of this section of the State are nearly ready for the first cutting.

The Mechanical Department has been remodeling a job printing-press for the printing-office.

The Manhattan Fish Club will hold a meeting on the evening of May 9, in Bert Frost's bicycle shop.

Professor Lockwood has been asked to deliver the memorial address at Wabaunsee on Memorial Day.

Editor Perkins, of the *Nationalist*, and family left Tuesday for their future home in southern California.

It is rumored that a new time-card on the Union Pacific will send the evening flyer through Manhattan at about midnight.

Jesse M. Jones, one of our third-year agricultural students, has an article on soy beans in the Chicago *Dairy and Creamery*.

The senior mechanical engineers are commencing to trace original drawings, which they have been making of a steam engine.

The traction engine, after a long winter's rest, is again on its feet. It made a successful trial trip over the campus roads last Thursday.

Mr. Wabnitz, foreman of the College shops, is making a horn cane for Mr. Harrop. When finished it will be a very unique and handsome wand.

The Mechanical Department is preparing to grind lawn mowers by the wholesale. Heretofore it has been very inconvenient to do this kind of work.

Professor Willard went to Topeka last Saturday morning to visit his wife, who is in the hospital at that place, where she went several days ago to have a surgical operation performed.

The College pay-roll for April shows an expenditure of $5720.51. Of this amount, the Experiment Station employees got $736.54, the College officers $3676.97, the College employees and students $1310.

The building committee of the Board of Regents met on Saturday afternoon to consider the bids for the new gymnasium. There were but two bids handed in on time, and both were found above the figures which the College has at its command.

Companies A and B took their first target practice last Monday. Lieutenant Poole and Private Owsley made the best scores, each making twenty-four points out of a possible twenty-five.

The Union Pacific railroad will probably build a sheep yard at Manhattan. Mr. Sam Hill, the live-stock agent of the road, has recommended to his company the immediate building of sheds that will accommodate twenty thousand sheep.

Prof. D. G. Lantz, of Alma, visited College this week. He reports the completion of a successful school at Alma, where he has been the superintendent for last year. He returns there within a few days to conduct the summer normal of Wabaunsee county.

Pres. E. R. Nichols, Prof. H. M. Cottrell and Regents McDowell and Coburn returned from their visit to the agricultural colleges of Indiana, Illinois Wisconsin, Minnesota and Iowa last Friday night. They report progressive institutions in every one of these states, but believe that on the whole the Kansas State Agricultural College can hold its own in a fair comparison. President Nichols promised the students on Saturday morning that he would soon give them a detailed account of what he observed.

The Farm Department of the Experiment Station has just issued Bulletin No. 100, containing an account of the progress of "Soy Beans in Kansas in 1901." The pamphlet contains 58 pages of reading matter, a number of half-tones and a statistical map, and may be obtained free by writing to the Agricultural Experiment Station, Manhattan, Kan. The bulletin concludes its inquiries as follows: "Soy beans have been grown on the College farm for twelve years, and during that time have produced feed worth fully as much as corn grown on an equal area of the same kind of land. They stand drought well, and supply cheaply protein, the material necessary in the formation of blood, muscle and milk. They increase the yield of succeeding crops, and are an excellent crop with which to prepare the soil for alfalfa or wheat. They are not touched by chinch-bugs, but are a favorite feed for rabbits. They are a valuable feed for horses, beef and dairy cattle, calves, hogs, sheep, and poultry, supplying in a home-grown crop protein and mineral matter, the materials in which most Kansas feeds are deficient. A majority of the two hundred ninety-two farmers who reported growing soy beans in 1900 think them a profitable crop, and this with a new crop, in an unfavorable season. On Kansas farms where there is a sufficient supply of alfalfa for all the stock, we do not think it will usually pay to grow soy beans. Alfalfa supplies protein and mineral matter at a less cost than soy beans. On most Kansas farms where there is not alfalfa for all the stock, it will pay to raise soy beans. Judging from the experiences of the farmers who raised the beans last year, it is most profitable to plant ten acres or more. Inoculated soil for soy beans may be obtained in limited quantities of the Farm Department of this Station at fifty cents for one hundred pounds. We advise raising soy beans two years in succession where the soil has been inoculated, in order to make the inoculation thorough and permanent."

ALUMNI AND FORMER STUDENTS.

Dr. G. W. Smith, '93, is at home on a visit since his graduation in medicine, and greeted his many friends at the College last week.

S. R. Kimble [third year last term] was commissioned corporal of Troop I, Fourteenth U. S. Cavalry, last week and writes that he is studying hard for further promotion.—*Mercury.*

E. O. Sisson, '86, Director of Bradley Polytechnic Institute, Peoria, Ill., sailed on the 28th ult., for Naples. He will spend four months visiting the chief cities of continental Europe and England.

The papers report the marriage, on April 29, by Rev. J. K. Miller, of Wilber Sarber and Mrs. Mary Hanson, both of Manhattan. It will be remembered that Mrs. Hanson was the manager of the College dining-hall two years ago.

Dr. J. Wilson Evans, ['94] graduated from the Chicago Homœopathic Medical College last week and returned home Thursday night. After a rest of a few weeks Doctor Evans will select a location and commence to practice his profession.—*Mercury.*

Mr. George Christensen, ['94], assistant to Prof. O. P. Hood, in the Michigan School of Mines, at Houghton arrived last week for a month's visit at his home in the northern part of the county. He spent Friday in the city with his brother, J. C. Christensen. —*Nationalist.*

The dispatches state that John R. Harrison, ['88] has resigned as postmaster at Havana, and Carlos Hernandez, a Cuban, was appointed his successor. Senor Hernandez will assume charge next month. Mr. Harrison will re-enter the service of the United States as post-office inspector.—*Mercury.*

Harriet G. Nichols, '98, left for home in Liberal, Kan., last Thursday morning, on account of continued illness in the family at home. During the current College year she has been taking postgraduate work in mathematics and physics and teaching a number of classes in algebra and laboratory work in chemistry. She will be much missed by a large circle of friends.

Ralph E. McDowell, sergeant of F Troop, Eleventh Cavalry, U. S. V. [Second year, 1889], arrived in Manhattan last Thursday. He was mustered out of service in San Francisco about the middle of March and came to Colorado, where he visited relatives and met his father, Gen. J. L. McDowell, who left Manhattan a month ago. Ralph saw pretty nearly all kinds of service while in the Twentieth Kansas and after reënlistment in the Eleventh Cavalry. He looks a little older than at the time of his departure for the war. The experiences of the boys in Luzon were not such as to perpetuate youth. He wears a mustache almost as thrifty as the real Kansas product. Everybody was glad to see Ralph and will regret his departure in the near future for his home in Colorado.—*Nationalist.*

WEATHER REPORT FOR APRIL, 1901.

Temperature.—The mean temperature was 53.97°, which is .23° below normal. There have been 24 warmer and 18 colder Aprils in the past 43 years. The highest temperature was 90° on the 26th, the lowest 23° on the 3d—a monthly range of 67°. The greatest daily range was 42° on the 23d, the least 1° on the 1st. The mean daily range was 24.93°. The warmest day was the 29th, the mean being 74.5°; the coolest the 2d, the mean being 36°. The mean of the daily maxima was 66.43°, of the daily minima 41.5°.

The following table gives comparisons with preceding 43 Aprils:

APRIL.	Number of Rains	Rain in Inches	Per cent of Cloudiness	Prevailing Wind	Mean Temperature.	Maximum Temperature	Minimum Temperature	Mean Barometer.	Maximum Barometer	Minimum Barometer
1858	8	5.64			51.66	87	30			
1859	7	2.54	34	NW	49.43	90	22			
1860	2	.12	28	NW	57.99	90	30			
1861	1	2.00	34	S & SW	54.18	93	31			
1862	6	3.63	48	N	49.68	78	31			
1863	5	9.12	33	NW	59.43	93	39			
1864	5	1.68	60	NW	47.52	79	27			
1865	9	2.93			51.06	76	23			
1866										
1867	3	2.44	40	N	49 72	75	31			
1868	7	1.96	56	N	48.25	83	27			
1869	6	2.20	42	SW	48.10	77	22	28.72	29.10	28.15
1870	5	.50	45	SE	52.63	85	19	28.74	29.00	28.40
1871	7	3.00	43	SW	57.07	91	32			
1872	7	2.06	52	SW	56.42	89	30			
1873	9	1.67	57	NW	47.31	91	23			
1874	3	1.40	67	NE	46.76	84	24	28.75	29.14	28.33
1875	7	1.60	44	NW	48.45	82	19	28.67	29.04	28 32
1876	5	7.52	43	SW	53.58	84	26	28.72	29.16	28.36
1877	6	4.08	48	NE	53.08	84	20	28 65	29.10	28.19
1878	5	2.02	51	NW	57.77	85	27	28.50	28.95	27.98
1879	8	3.21	52	NW	55.73	80	18	28.56	29.92	28.19
1880	2	1.08	32	SW	56.79	89	30	28.53	29.02	27.88
1881	6	1.56	57	NW	52.09	82	18	28.58	28.90	28.11
1882	7	3.47	57	SW	56.14	86	32	28.59	28.99	28.14
1883	7	2.36	54	SW	55.57	93	31	28.50	29.02	27.89
1884	12	3.23	40	NE	49.47	85	27	28.55	28.91	27.95
1885	5	4.03	44	NW	53.72	81	28	28.52	28.85	28.17
1886	5	5.26	47	NE	56.30	88	18	28.83	29.26	28.02
1887	7	2.85	33	SW	58 85	98	23	28.78	29.29	27.95
1888	6	1.38	27	E	58.77	93	28	29.10	29.53	28.64
1889	3	1.74	37		55.22	92	26	29.03	29.41	28.47
1890	5	1.74	40	E	57.33	93	26	28.91	29.29	27.38
1891	6	1.86	35	NW	57.84	91	21	28.87	29.32	28.44
1892	10	2.91	39	SE	52.73	85	26	28.79	29.27	27.95
1893	7	1.28	34	NW	55.10	98	26	28.72	29.09	28.04
1894	8	1.33	23	S & E	59.42	92	25	28.78	29.27	28.41
1895	5	1.46	40	SE	60.68	94	31	28.74	29.17	28.05
1896	12	5.49	44	SE	61.87	95	25	28.70	29.25	28.18
1897	7	4.19	46	N	54.83	89	31	28.81	29.25	28.37
1898	10	6.36	31	N	54.25	90	25	28.94	29.39	28.55
1899	8	.93	35	N	55.13	94	17	28.85	29.30	28.19
1900	9	3.23	49	E	58.43	84	28	28.83	29.29	28.51
1901	7	3.82	43	E	53.97	90	23	28.94	29.26	28.21
Sums	275	121.88	1766		2330.32			862.20		
Means	6.4	2.83	43		54.20			28.74		

Barometer.—The mean pressure for the month was 28.94 inches, which is .20 inch above the normal. The maximum was 29.26 inches at 7 P. M. on the 9th, the minimum 28.21 inches at 7 P. M. on the 4th, a monthly range of 1.05 inches.

Cloudiness.—The per cent of cloudiness was 43, which is normal. The per cent at 7 A. M. was 41.7, at 7 P. M. 43.3. Ten days were cloudy, 5 partly cloudy, and 15 were clear.

Rainfall.—The total rainfall was 3.82 inches, which is .99 inch above normal. There have been 9 Aprils with more rainfall and 33 with less. Rain fell in measurable quantities on 7 days.

Wind.—The wind was from these directions the following number of times: North 8, northeast 2, east 28, southeast 3, south 8, southwest 6, west 0, and northwest 5. The total run of wind was 7978 miles, which is 1434 miles below normal. This gives a mean daily velocity of 265.93 miles and a mean hourly velocity of 11.08 miles. The maximum daily velocity was 727 miles on the 5th; the minimum, 87 miles on the 23d. The maximum hourly velocity was 42 miles from 11 to 12 A. M. on the 5th.

WIND RECORD.

APRIL.	Total Miles	Mean Daily	Maximum Daily	Minimum Daily	Mean Hourly	Maximum Hourly
1889	7506	250.21	587	77	10.42	37
1890	9577	319.23	710	103	13.30	51
1891	7748	258.28	456	51	10.76	35
1892	11196	373.20	963	134	15.55	49
1893	10172	339.06	652	92	14.12	45
1894	11233	374.43	689	102	15.60	45
1895	8363	278.77	702	112	11.62	40
1896	12607	420.23	771	180	17.51	44
1897	10502	350.07	837	86	14.59	50
1898	7341	244.70	512	70	10 20	38
1899	9216	307.20	639	103	12.80	59
1900	8912	297.07	779	83	12.38	42
1901	7978	265.93	727	87	11.08	42
Sums	122351	4077.38	.....	.....	169.75	.....
Means	9412	313.49	.....	.....	13.06	.....

ERNEST R. NICHOLS, *Observer.*

One evening of last week the local editor happened to notice Hon. F. D. Coburn's new book on "Alfalfa" laying on a desk in the Agricultural building and before he knew it he was reading in it. He read and read, borrowed the book for the night and—as young women are sometimes accused of doing with high temperature love stories—read through its one hundred sixty-four pages before going to rest. Your "local" is neither a practical farmer nor a scientific agriculturalist, but he is interested in agricultural subjects, and this little book, which ought to be in the hands of every progressive farmer and stockman of the West, is undoubtedly the clearest, most practical, best written and handsomest treatise on the "paramount issue" of the Kansas prairies that has come to his eyes. If the edition of the book is large enough to go around, or more editions are coming, it will change large sections of the State into veritable gold mines. Its cost is but fifty cents.

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LESSONS FROM JEAN VALJEAN

[Extract from a paper read before the Riley County Teachers' Association, March 2, 1901.]

WHAT a delightful life we could live if this world were only dreamland, providing, of course, we were allowed to create our own dreams. And in fact, what makes our dull, prosy life worth living, even now, is the day-dream with which we choose to color it. I am asked to give you a few glimpses of that greatest dream of Victor Hugo's, Les Miserables. You may shudder at the thought if you will, for the dream is not as pleasant as a summer morning, with birds singing and flowers blooming all around you, but it takes the form at times of a horrible nightmare from which no escape seems possible. Instead of life tinted with rose color, with hope, love, and constant joy, it gives, as its name implies, a story of Les Miserables, the *miserable* ones. However, the dream is of a hero; not a hero in armor, fighting imaginary battles, but a modern hero, fighting the battles of real life, patterned after the ideals of the only perfect man of all time —the Christ.

Hear his story in brief. Jean Valjean, the poor woodchopper, earning usually enough to provide his sister's family with food, finds himself in the depth of winter without work and the children crying for bread, goes out in the recklessness of dispair, thrusts his huge fist through a baker's window and makes off with a loaf of bread. He is overtaken, arrested, tried and sentenced to the galleys. Here, on account of repeated attempts to escape, his sentence is prolonged, until at the age of forty-six he is finally liberated. With a yellow passport which announces that the holder is Jean Valjean, a galley slave, a very dangerous man, he goes forth into the world, hating all mankind, a dangerous man indeed.

Arriving at the town of D—— he is refused admittance to every place, but stepping into the bishop's residence he is received by him as if he were a brother. The good bishop unintentionally places temptation in his way and the poor convict, overcome by it, steals

the silver plate and makes his escape. He is overtaken by the officers and brought back to the bishop, who tells them that he has given the silver to Valjean, and the candlesticks also, which he insists on his taking. He then sets him free, but with these words: "Jean Valjean, my brother, you no longer belong to evil but to good. I have bought your soul of you. I withdraw it from black thoughts and the spirit of perdition and give it unto God." Valjean then leaves the town and hurries away across the fields. The wild flowers lingering in the hedges bring back recolletions of his childhood days, and all day he sits thinking. But in an evil moment he steals a silver coin from a little Savoyard, which the child had accidentally dropped at his feet, and notwithstanding little Gervais pleads with tears, he refuses to give it up. When the child is out of sight it suddenly dawns upon him what he has done, the bishop's words ring in his ears, and he rushes wildly after little Gervais, calling his name loudly. But failing to find him he throws himself upon the ground and weeps violently. That night the stage driver sees a figure kneeling as if in prayer before the bishop's door—the transformation of Jean Valjean has begun.

He enters the town of M—— just in time to rescue a child from a burning building and thus avoids showing the hateful passport. He discovers a new way of making jet, becomes immensely rich, builds up the town, and in time becomes Monsieur, the Mayor, honored, respected, famous. But Javert, the policeman, that type of "justice untempered with mercy," thinks he has found in the mayor the galley slave, and is confirmed in this belief by witnessing his rescue of old Fauchelevant. However, another is to be condemned as Jean Valjean. After a terrible struggle with himself and conscience he rushes to the scene of the trial, declares himself the real Valjean and goes back to the galleys.

He rescues a sailor from death, feigns drowning, and again escapes. After securing his hidden treasure he obtains possession of little Cossette, whom he had promised her dying mother to protect, and goes to Paris. Here, after numerous successful attempts to evade Javert, he devotes his life to educating and caring for Cossette. But finally, mistrusted, misjudged and neglected by those he loved and who owed their very lives to him, he dies—Jean Valjean, the saint. Such in barest outline is his story.

The lessons we might draw from this wonderful story are numerous and varied. Jean Valjean, poor, poverty striken, suffering

from want; result, a thief. Does poverty justify crime? Is crime a necessary outcome of poverty? Even Valjean, when he thought it over, said to himself that it was not necessary. And yet it is the cry of many a socialist, anarchist, and would-be social reformer of our modern times—poverty responsible for all crime, all evil! Do severe methods of punishment tend to check crime or correct the fault? The galleys, at least, did not prove an excellent reformatory, for after nineteen years of service Valjean left them with hatred in his heart and his arm raised to strike at the least provocation—transformed from the dull, harmless wood-chopper into a brute, a criminal indeed. This is certainly a problem in real life; one that will bear study, even by the twentieth-century citizen of our own commonwealth, for justice is not always meted out by our courts of law, and our methods of punishing crime are not intact or flawless.

But how encouraging the thought, if it were only true, that a Bishop Bienvenue crosses the path of every lost soul, to meet whom is to come in touch with heaven. "He was ever minding people of God. He was good to the poor, tender to the erring, illuminative to those who were in the moral dark, and came over people like a sunrise, crept into their hearts for good as a child creeps into its father's arms and nestles there like a bird." His words and influence followed Valjean wherever he went; the bishop became his ideal, and, as a natural result, in time he came to be like him in every respect—a lesson of influence that ought to inspire us with the greatness of our possibilities and suggest the key-note to true happiness.

But is Jean Valjean, reformed, transformed, able to stand the test? It is easy to do right when one is prosperous, but when one must put into the balance name, fame, fortune, friends, yes happiness and freedom itself, and choose between all and slavery, then comes the real test. Valjean's struggle with conscience is the purest tragedy, picturing the greatest suffering that mortals can endure, and yet winning a victory over self, enviable in the extreme. Monsieur Madeline, rich, prosperous, honored, the philanthropist of his community, mayor of the city, receiver of special honors from the government, is suddenly brought face to face with the fact that he must either acknowledge his identity or an innocent man suffer in his stead. Time and again he comes to the conclusion first to remain silent and go on with his great work of philan-

thropy, and again to denounce himself and go back to the galleys. Ever since he came to M—— he has had two aims in life, the one to conceal his name, the other to sanctify his life. Up to this time they had not conflicted. Now he sees that his first resolution will answer his first purpose but tend to destroy the second. Again and again his resolution wavered. A voice at length seemed to to call to him, "Jean Valjean! Jean Valjean! complete what you are about to do; forget the bishop, be an honest man yourself, remain mayor, honorable and honored, enrich the town, assist the indigent, and during this time while you are here in joy and light there will be somebody who wears your red jacket, bears your name in ignominy and drags along your chain at the galleys."

And so the voice, the voice of conscience, which at first seemed faint, grows stronger till it sounds in his very ear, and he fancies that it must be a voice outside of himself, until finally the struggle is ended—victory is on the side of conscience. And we next see Monsieur Madeline standing before the people at the trial declaring, "I am Jean Valjean; you see clearly that I am Jean Valjean. All who are here think me worthy of pity, do you not? Great God! when I think of what I was on the point of doing I think myself worthy of envy." And he goes forth to the galleys. Thus ended the struggle, a struggle akin as near as can be to that struggle in Gethsemane more than nineteen hundred years ago. Can we measure up to the conscience of Jean Valjean? Should a test so terrible be our lot could we win the victory and come out on the side of conscience?

It seems, however, that Valjean has not been tested sufficiently. He is in Paris, attracted to it as a needle to a magnet. It never occurs to him that life's battle would be easier fought far away from that city, across the ocean, perhaps. Here we find him again in the light of the Christian hero, saving his arch-enemy, Javert, rescuing Marius, who was winning Cossette from him, gaining such victories over self and exhibiting such moral courage as is not often known in the world at large. But the most bitter of all trials to Valjean was the last—misjudged, and by those dearest to him; by Marius, whom he had carried through the vile sewers of Paris and saved his life; by Cossette, whom he had cherished and protected. Thought to be a murderer, a thief, using another man's fortune—poor Valjean! That trial would have been almost enough to have reversed the words of the good

bishop, "you belong no longer to evil but to good." And we are more and more inclined to denounce circumstantial evidence as proof of guilt.

Alas! Valjean is dying. The bishop's candlesticks are burning; the poor old man is about to breathe his last. Cossette and Marius—we denounce them for their cruelty and cannot forgive them—come almost too late, but in time to receive his forgiveness and blessing, and Jean Valjean, a redeemed soul, passes into eternity.

The greatest lesson, it seems to me, is that of redemption. A soul sunk to the lowest depths of degradation, brought into touch with heaven, purified, filled with power to overcome evil, to endure all things, to love them that hate you and despitefully use you, than which there is no greater miracle in the world.

ADA RICE.

HOW TO GROW, HARVEST AND FEED ALFALFA.

ALFALFA. Lucerne, Spanish Trefoil, Chilian Clover, French Clover, Medic, Purple Medic (*Medicago sativa*). Practical information on its production, qualities, worth and uses, especially in the United States and Canada. By F. D. Coburn, Secretary Kansas State Board of Agriculture. Illustrated. 12mo., 160 pp., cloth. Orange Judd Co., New York. Price, post paid, 50 cents.

IN 1891, there were grown in Kansas 34,384 acres of alfalfa; in 1900, Kansas alfalfa fields covered an area of 276,008 acres, an increase of over eight hundred per cent. The one man who has done more to bring about this increase than any other is Sec. F. D. Coburn, of the Kansas State Board of Agriculture. Secretary Coburn, during the past twelve years, has studied alfalfa from every point of view; he has talked alfalfa, written about alfalfa for papers throughout the United States, has had alfalfa discussd by the most successful growers at every annual meeting of the Kansas State Board of Agriculture, and has published in his quarterly reports the most complete and exhaustive information that could be obtained in regard to alfalfa. The new book, "Alfalfa," just from the press of Orange Judd Co., is a summary of this twelve years of thorough investigation of alfalfa by Secretary Coburn.

The history of alfalfa is traced back to 450 B. C. It was found growing successfully in England in 1765 and in New York in 1820; but alfalfa growing did not develop until its introduction into Cali-

fornia in 1854, whence it spread eastward until it has now become one of the great crops of the Trans-Missouri region.

The book gives a thorough discussion of the climate and soils adapted to alfalfa growing, the seed-bed and its preparation, time and method of seeding, treatment of the young alfalfa, discing and harrowing, and harvesting.

A comparison of the yield of alfalfa with other crops shows it yielding from four to five times as much feed as red clover and the ordinary grasses and one and one-half times as much as corn.

The feeding value and the best methods of feeding are discussed for horses, steers, cows, young cattle, sheep, hogs, and poultry. A chapter is devoted to the "Friends and Enemies of Alfalfa," and how to treat them.

A remarkable feature of the book is the chapter on alfalfa in the different states. Here alfalfa is shown as a profitable crop in twenty-one states and territories of the United States, extending from Idaho and Montana on the north to Louisiana and Georgia on the south, and from California and Washington on the west to Delaware and New Jersey on the east. In Delaware it is shown that good crops of alfalfa have been cut from a field for twenty years in succession. In New Jersey the annual feed value yielded per acre by alfalfa is equivalent to six tons of bran. In Montana crops have been cut for sixteen years from one seeding, and in Louisana six cuttings may be made annually. This chapter shows that alfalfa is a most profitable crop under widely different climates and soils and should convince any intelligent farmer who owns a fairly good farm that it will pay him to give alfalfa a thorough trial.

The book is printed on the best quality of paper, in large new type, with the many illustrations well brought out. It is a comfort to the eye to read it.

Secretary Coburn has conferred a boon on the farm interests of the United States by writing this book, and if the publishers will push the book as it deserves, the area in this country devoted to alfalfa will increase at an astonishing rate. H. M. COTTRELL.

The next College year will begin on September 19. The examinations for admission will be held at 9 A. M. on Wednesday, September 18.

REFERENCE BOOKS FOR STUDENTS OF GEOLOGY.

IN CONNECTION with the regular class work of the third year, the following texts are to be consulted by the student, who is supposed to purchase one of them, the one first named:

Scott: An Introduction to Geology.....Macmillan
Bonney: Story of our Planet.....Cassell
Le Conte: Elements of Geology; and "Compend of Geology".....Appleton
Geikie: Text-book of Geology; and "Class-book".....Macmillan
Prestwich: Chemical and Physical Geology, Vol. 1.....Clarendon Press
Dana: Manual of Geology.....American Book Company
Lyell: Elements of Geology.....Harper's Student Series

Besides growing familiar with several of the above-named text-books, the students are expected to consult the Century dictionary very freely for all unusual names and places; and in this way to enlarge their vocabulary and review their geography. It is found that the index of Bartholomew's "Atlas" (to be secured through Putnam's N. Y.) is almost indispensable in locating geographical points, especially those referred to by British authors. Taking for granted, then, a free use of dictionary, atlas and encyclopedia Brittanica, the following more technical works are advised on special topics:

FIRST HALF-TERM.

On the Rock-forming Minerals:
Dana, Jas.: A System of Mineralogy.....Wiley
Dana, E. S.: "Text-book" and "Minerals".....Wiley
Hatch: Mineralogy.....Whittaker
Moses and Parsons: "Mineralogy".....Van Nostrand

On Internal Agencies (Hypogene):
Milne: "Earthquakes".....Appleton's Int. Sci. Series
Dutton: The Charleston Earthquake....Ninth Annual Report U. S. G. S
Judd: On Volcanoes.....Appleton's Int. Sci. Series
Dana: Volcanoes of the Sandwich Islands.
Bonney: Volcanoes.....Putnam's Science Series

On Surface Agencies (Epigene):

Weathering:
Merrill: Rocks and Rock-decomposition.....Macmillan
Stockbridge: Rocks and Soils.....Wiley

Aqueous Agencies:
Russell: "Rivers".....Putnam's Science Series
Reclus: The Earth and Its Inhabitants (selected parts).....Appleton
Geikie: The Great Ice Age.....Appleton
Captain Gilbert: "Lake Bonneville".....Special Report U. S. G. S
Mosely: "The Challenger Expedition".....Macmillan
W. Thomson: "Voyage of The Challenger".....Harper
Dutton: The Grand Canon of The Colorado...Monograph U. S. G. S

Life on The Earth:
Darwin: "Origin of Species"..... Appleton
Mivart: "Genesis of Species"..... Macmillan
Dana: Corals and Coral Islands..... Dodd, Mead & Co

SECOND HALF-TERM

Study of Rocks:
Williams: Manual of Lithology..... Wiley
Hatch: Petrology..... Swan, Sonnenschein & Co
Merrill:..... (see above under weathering)
General Stucture and Stratification:
Geologic Folios:..... U. S. Geological Survey
Reports of University Geological Survey of Kansas.
Physiography:
Geikie: Earth Sculpture..... Putnam's Science Series

With the above materials available, it is expected that our students may get a fair locative knowledge of the work that has been done in the geologic field, and more or less familiarity with the actual methods of the workers. The fact will be well impressed that while the amount of work that has been done already is great, we have by no means completed the record and are not able to give a complete history of the earth—much as we might wish to do so. In this, as in other matters, the benefit to the student will depend on the amount of energy put into the work—library work in this case.

GEO. F. WEIDA.

Publisher J. H. Neff, of the *Daily Drovers Telegram*, writes to Professor Otis from Kansas City: "Every time we publish a bulletin from your College we hear of it from many sources and we assure you they are looked for with eagerness by those interested in such work."

We are in receipt of the report for the first quarter of the present year of the Kansas State Board of Agriculture. The pamphlet is devoted chiefly to a discussion of Shorthorn cattle, their origin, history, characteristics, and merits, but it contains also a number of valuable and interesting papers on other agricultural topics, such as land plaster, agricultural journalism, relative values of feeding stuffs, sorghum, home duties, etc. The report is richly illustrated and fully up to the high standard of its predecessors. It is a credit to its efficient editor, Hon. F. D. Coburn, and should be in the hands of every farmer of the State. Send for it.

THE INDUSTRIALIST.

Published weekly during the College year by the Printing Department of the

Kansas State Agricultural College.
Manhattan, Kansas.

PRES. E. R. NICHOLS.....Editor-in-Chief
PROF. J. D. WALTERS.....Local Editor
PROF. J. T. WILLARD.....Alumni Editor

LOCAL NOTES.

Keep off the grass!

Commencement, June 13, at 10 A. M.

June 14 to September 18, summer vacation.

Librarian Josephine T. Berry is back again and at her post.

President Nichols went to Topeka Saturday morning on College business. He returned Saturday noon.

Professor Lockwood is enjoying a visit from his father, J. H. Lockwood, D. D., of Beloit, Kan.

The Manhattan athletic park was improved last week by the addition of a roofed grand stand.

The College library has a thousand volumes in the State bindery at Topeka waiting for new dresses.

During the past month the College library has placed about one hundred additional books upon its shelves.

The last *Student's Herald* publishes the photographs of the retiring editorial staff—a good picture of good-looking young people.

The following figures have been given us as representing the membership of the four literary societies of this College: Ionian 94, Webster 71, Hamilton 69, Alpha Beta 70.

Applications for assistance in farmers' institute picnics to be held next summer are being received from many parts of the State. Farmers' organizations who wish such assistance should write early.

Professor Weida is at Lawrence to-day, May 14, attending the meeting of chemists of the Missouri valley at the State University and visiting the chemical laboratory recently completed at that institution.

The commencement exercises of the high school will be held Thursday evening, May 23. The class consists of nineteen girls and seven boys. A few orations and Hiawatha illustrated will constitute the program.

The Bethany College Concert Company gave a good entertainment to a fair "house" on May 4, in the Manhattan opera-house.

The Printing Department is mailing Bulletin No. 100 of the Experiment Station. The list of applicants nearly reaches the twenty thousand mark and the work of enveloping and addressing that many pamphlets is no small job.

Geo. W. Wiley, State fish warden, was in the city last week to consult with W. C. Tegmeier, deputy for Riley county, in regard to fish protection. Mr. Wiley was on his way to Junction City to assist in the prosecution of those arrested there for violating the fish laws.

The new sidewalk is gradually creeping up the hill. The rim stones are about finished and set, and a few more days will see the cinder filling in place. The next step will be that long promised gravel road from the city to the College gates. What do the city fathers think of it by this time?

The Kansas Wesleyan baseball team was completely smothered by the Agricultural College team at Manhattan, Monday afternoon, by a score of twenty-three to four. The day was too cold for a good game, but that was no excuse for the poor game put up by the preachers. The farmers played good ball and did some terrific batting.—*Salina Union.*

The State Board of Agriculture, through Secretary Coburn, has started a movement to get the reports of the board admitted for transmission through the mails as second-class matter. This movement should succeed in order to give these reports the widest possible circulation. Heretofore the appropriation for postage has been so limited that it hampered the distribution of the documents.

The Ionian annual which was given last Saturday evening to a crowded and enthusiastic house was a great success in every particular. It consisted of scenes from Shakespeare, interspersed by a musical program from Verdi. The closing piece was especially fine; the "Miserere Scene" from Il Trovatore. The program, printed by the Printing Department, was unique, containing large half-tones of the English poet and Italian composer.

The seniors of the General Course are getting some valuable practice in drawing from life. They take advanced object drawing five hours per week and finish about four sketches in the two sessions. A member of the class is called up by Professor Walters, asked to step on the classroom desk and after assuming a picturesque attitude poses there for half or three-quarters of an hour. The pictures show the usual differences of student work: some are spirited, others simply medium, and some are more fancy than fact.

Mr. C. P. Dewey is constantly improving his Park Place dormitories. He lately returned from Chicago, bringing with him a library of about eight hundred volumes which he will place at the disposition of the students lodging at his place. He is determined to make Park Place an ideal home for the young men and young women attending the Agricultural College.

Mr. W. H. Beal, assistant in the office of Experiment Stations, United States Department of Agriculture, spent a day and a half last week inspecting the work and expenditures of the Experiment Station. A visit of this kind is made annually to each of the experiment stations of the country to see that they are being conducted, and the funds expended, in accordance with the provisions of the act establishing them. Mr. Beal expressed himself as very well pleased with the condition of things here. He was also given a hasty survey of the other departments of the institution, and regards this as one of the chief agricultural colleges of the country. He seemed to be most impressed with the weight of the burden of duties upon all College and Station officers, a burden imposed by our crowd of students and an income insufficient to employ an adequate force.

The U. S. Civil Service Commission announces that it desires to establish, for its own use, an eligible register for the positions of plant physiologists, horticulturists, plant pathologists, ethnologists, and a number of assistants in these lines. Persons who desire to compete for these positions should apply at once to the U. S. Civil Service Commission, Washington, D. C., for application forms 304 and 375, which should be properly executed and filed with the thesis required prior to the hour of closing business on June 3, 1901. Applicants must be over twenty years of age and must pass a special examination. The salaries range from $800 to $2000. The selections from the list of eligible candidates will be made with entire impartiality and wholly without regard to any consideration save their ability as shown by the grade attained in the examination.

The Faculty has accepted the challenge of the fourth-year students to a game of baseball. Great interest is being shown on both sides, and we may expect a lively game in the near future. The Faculty committee on athletics recommended that the following members of the Faculty compose their line-up: Captain and pitcher, President Nichols; supply pitcher, Professor McKeever; catcher, Professor Remick; supply catcher, Professor Otis; first base, Professor Lockwood; second base, Professor Cottrell; third base, Professor Weida; short-stop, Professor McFarland; left field, Professor Walters; center field, Professor Eyer; right field, Professor Goodell. Supplies, Professors Willard, Brown, Rickman, Sisson, Butler, Messrs. Clothier, Westgate, Norton, and Huycke. The main question yet to be decided is: can a selected professor detail his assistant to meet this kind of an appointment; *i. e.*, can he play by proxy?

Kansas College Men Abroad.

The committee of Kansas Agricultural College Regents who have been making a study of live-stock and kindred matters in other states and at other institutions, with a view to the most judicious use of appropriations by the last legislature, has returned, after looking at stock and at the agricultural colleges in Indiana, Illinois, Wisconsin, Minnesota, and Iowa. F. D. Coburn, vice-president of the Board of Regents, who was one of the committee, says they met with a most cordial reception everywhere, and none but praiseful expressions about Kansas were heard. Old-time misapprehension of the State and her people seems to be rapidly disappearing, and a proper recognition of what Kansas really is and what she has and does is readily granted by all the well informed.

"At other institutions," says Mr. Coburn, "they know much of our Agricultural College, and invariably concede that no other school in the country has such opportunities for development and usefulness, if held by its board of control in line with the purposes for which agricultural colleges were endowed, and not allowed to drift into merely literary and academic lines, using agriculture as only a title with which to secure appropriations of public funds. All the strong men met by the committee in different states recognized that Kansas is inevitably to stand at the front in agricultural and live stock lines, and insisted that the College at Manhattan, having no entangling or hampering connections with any university or similar institution, as those in some other states have, should be made preëminently strong in all that most directly pertains to agriculture and animal husbandry. Although each one of the institutions visited excels the Kansas College in some one or more particulars, none of them do in all respects, even where two or three times as much money has been expended on them, and none come up to ours in point of attendance. All, however, are ahead of Kansas' Agricultural College in the matter of live-stock breeding, a feature to which Kansas should from the very nature of her conditions give a large measure of attention. The other institutions have many thousands of dollars invested in all the better breeds of live stock, including the finest specimens of beef and dairy cattle, draft and driving horses, sheep and swine, besides devoting large sums to dairying and its advanced development—almost regardless of cost."

As to the purchase of needed live-stock, Secretary Coburn is of the opinion that Kansas breeders can supply the most, if not all, that is needed, of as high quality as can be found anywhere, and to such extent as his vote can influence the selection, the first preference will in each instance, advantages in price being at all equal, be given to animals from herds belonging to Kansas breeders. He has no doubt of the same views being entertained by his colleagues on the Board of Regents. The members of the committee were J. S. McDowell, President of the Board; F. D. Coburn; E. R. Nichols, President of the College; and H. M. Cottrell, professor of agriculture. Their trip will undoubtedly prove of great value to the College, and to the State as well.—*Kansas Farmer.*

TERMS AND VACATIONS.

Fall Term, 1901, Thirteen Weeks.

WEDNESDAY, SEPTEMBER 18.—Examination for admission, at 9 A.M.
THURSDAY, SEPTEMBER 19.—College year begins.
TUESDAY, SEPTEMBER 24.—Short course in domestic science begins.
SATURDAY, NOVEMBER 2.—Examination.
THURSDAY AND FRIDAY, DECEMBER 19, 20.—Examination at close of term.

Winter Term, 1902, Twelve Weeks.

MONDAY, JANUARY 6.—Examination for admission, at 9 A.M.
TUESDAY, JANUARY 7.—Winter term begins.
TUESDAY, JANUARY 7.—Short courses in agriculture, horticulture and dairying begin.
SATURDAY, FEBRUARY 15.—Examination.
THURSDAY AND FRIDAY, MARCH 27, 28.—Examination at close of term.

Spring Term, 1902, Eleven Weeks.

MONDAY, MARCH 31.—Examination for admission, at 9 A.M.
TUESDAY, APRIL 1.—Spring term begins.
SATURDAY, MAY 10.—Examination.
TUESDAY AND WEDNESDAY, JUNE 17, 18.—Examination at close of year.
JUNE 15 TO 19.—Exercises of commencement week.
THURSDAY, JUNE 19, AT 10 A.M.—Commencement.
JUNE 20 TO SEPTEMBER 17.—Summer vacation.

Fall Term, 1902.

WEDNESDAY, SEPTEMBER 17.—Examination for admission, at 9 A.M.
THURSDAY, SEPTEMBER 18.—College year begins.

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4—Mechanical Engineering
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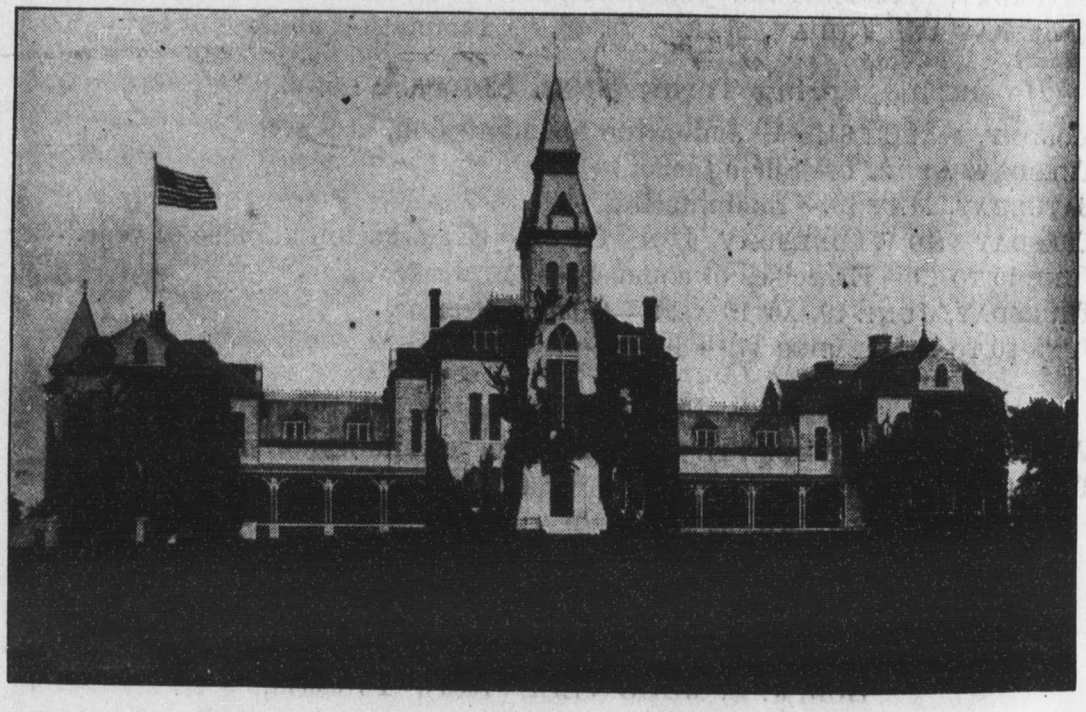
This Institution

is supported by the General Government and by the State of Kansas, and is designed, by its instruction, to promote the liberal and practical education of the industrial classes in the several pursuits of life.



COLLEGE classes are open to both sexes. Tuition is free in all departments. There is no charge for laboratory supplies. Room and board can be had at very reasonable rates. The yearly expenses, exclusive of clothes and traveling expenses, are between $100 and $200. All College laboratories, shops and class rooms are well supplied with needful apparatus and appliances. Practical application is made of the principles learned in the study of the sciences, and thus the College is made a school of applied science.

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2—Domestic Science
3—Dairying
4—Agricultural

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ERNEST R. NICHOLS, A. M., PRES.,
MANHATTAN, KANSAS.

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☆ ☆

Editor-in-Chief, - - *Pres. E. R. Nichols*
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THE INDUSTRIALIST.

VOL. 27. MANHATTAN, KAN., MAY 14, 1901. No. 31

DRESS REFORM.

IN THE very earliest times, clothing of any kind, we learn from a study of anthropology, originated in the desire to adorn the body. The nose-rings, earrings, bracelets, girdles of beads, shells, metals, tails of animals, feathers, fringes made of skins—these crude decorations constituted the only wearing apparel of the earliest people. They lived in a mild climate and did not need to provide for warmth. Though this ornamentation was grotesque in the extreme, yet it was a thing of pride and beauty to them. As mankind advanced, there was also a change in his clothing. As he moved to colder climes, his body needed protection from the cold, and for this purpose skins and furs were used. In this protection of the body we find manifested for the first time the idea of service or use. The gradual change from the savage state to that of civilization effected corresponding changes in dress. The clothing of skins was replaced by that of woven material, made at first of crude, coarse stuffs, and later of fabrics of finer quality. There were more garments worn, and these were of greater variety.

Clothes now served the purpose of the wearer in the different industries and determined the rank or position of the individual socially. Here was drawn the distinctive line between the man and the woman. Man continued to grow in power, both physically and mentally, and also in the exercise of his will, but woman was allowed to progress no faster than her lord decreed.

In this paper I am writing entirely of the general history of women and not of the exceptions that have marked the superior power of a few who have served as beacon lights to womankind, encouraging her on and holding aloft the ideal of what she might become would she but open her eyes to the truth. The lower classes of men wore the short, close costumes; those of distinction, office, rank, wealth, such as nobles, priests, scholars, and men of leisure, wore the long, trailing robes.

As the age of slavery ceased among the different nations of earth, when the slave owners from olden time to the present were forced to emancipate their slaves and servants and assume themselves a place among the working men of earth; as the different industries have developed, and the many and varied professions have become established, man has continually changed and altered his attire to suit his work. Men, in their evolution of dress, have been guided by notions of convenience. Utility has been their model of fashion to the present time.

But let us consider the woman's side. From our own day, way back through the dim vista of years to the beginning, woman has been man's slave and servant. It is true that in a few countries woman is at last beginning to feel what freedom is, to realize what it means to be mistress of her own body, mind, and soul. But this has only been for a very short time. During all the past ages she has been man's servant, and she has been taught very strictly to keep her place. Yes, even though God taught the world by the divine Mary what a blessed privilege it was to be a woman, even her significance has not until lately been fully recognized. The body of woman has not been revered or even respected by man.

Because of this disrespect, ownership, selfishness of man, woman has been shrouded, hooded, covered and draped to conceal her from public gaze. An Arab guide in Egypt, when asked by Mrs. Lucinda Stone why his wife, like all Egyptian women, wore the veil hanging just below her eyes to conceal her face, replied, "She's 'shamed 'cause she woman!"

But every child is a part of its father and mother, and every girl as well as every boy in the family receives the father element. This element of superiority, freedom, indomitable will, has been working out its salvation in the feminine heart and mind amid the struggle of the centuries, and the stronger the men have become the stronger birthrights they have given to their children.

Little by little, slowly but surely, parents have opened their eyes to behold the subtle power of their daughters. When freedom is once felt throbbing in a human soul it is like the first taste of human blood to the man-eating tiger. The desire and passion for it are never satisfied until gratified in full. The soul possessed of freedom becomes a giant, and giants in power our women are fast becoming in this the dawn of the twentieth century.

In speaking of the dress reform of women, Mr. B. O. Flower said in the *Arena*: "The present age is richer in promise of fruition for womanhood than any previous cycle. While silence has been unlocking the silent chambers of nature and bringing to light a world's study of life and evolution; while invention has been knitting nations and races into one great family, and establishing means by which our earth may be transformed into an Eden as soon as the savagery of man's passion and the selfishness of his instinct are subdued; while civilization has in ten thousand ways been making greater the possibilities of life, attainments and joys, woman in Europe and America has been slowly awakening to her rightful estate Not as the silent subordinate of man, but as his free, open-souled, clear-sighted companion and equal."

In her progress and in the dawning consciousness of her power and her rights I see the prophecy of a higher and purer civilization. The day-star of reason and sober judgment is breaking upon her vision; she is ceasing to be a mere echo of husband, father, and brother, or a reflex of conventional thought. She is no longer swayed solely by sentiment. She is now asking herself, when questions arise which relate to her, and about which she has never seriously thought before, "Is it right; is it just? Is it in accordance with common sense?" The dead past, over whose mound she has so long knelt, no longer holds her in its thrall. The impulse of a new life, strong as the voice of spring to budding trees and springing flowers, is urging her forward. Not the least among the questions which are pressing upon the thought of our leading women is that of rational dress. "I believe there are forces at work which will bring about, at a far earlier day than most persons imagine, as great a revolution in public sentiment as that which overcame conventionalism in regard to the sphere of woman." It was not many years ago that Mr. Flower wrote these words, and I believe the time he prophesied is fast approaching. Indeed, the beginning of that time is already here.

To-day in America we hear much of dress reform. There are dress reforms of all sorts and kinds. Some of them are very crude, to be sure. The first of anything is crude. But the ugliest and most incongruous things in dress have been done away with, and we begin to see the lines of beauty taking shape. Many women, graduates of our colleges and universities, are giving their earnest thought to this question of health and dress. The "one

dress" idea will never be adopted, for the ideals of American women are different from those in any other country. And among scholars, scientists, artists, authors, philosophers, poets, in the realm of mechanics and business, the women are fast taking their places beside our men. They have created sciences of their own, raising what has always been considered a menial service, that of the home, to a science and an art. These different occupations demand clothing and costumes suited to themselves, and at last the "eternal fitness of things" is beginning to establish and manifest its truth in the feminine fashion and dress of this period of the twentieth century.

Art is young in our country as yet, but it is growing. During the colonies' long struggle for freedom, the ideal was slumbering, but when the United States became a reality and our Union was at last a fact, education began and the American art was born; and when true art is born and nurtured in the lap of a nation the art child points heavenward, and this means the refining and ennobling of its people.

In our life and art, the woman's ideal stands beside the man's. She believes in the glorifying of the body, mind, and soul. Health of body is power to serve the physical ideal of purity, strength, and grace. Health of mind is power to seek truth untrammeled and unhindered by prejudice. Health of soul is freedom to relate itself without fear to the oversoul. Permeated with the health of body, mind, and soul, she is dedicating a new and more perfect whole to the service of God's truth and beauty.

There never was such freedom of choice in dress as there is to-day, because women are mistresses of themselves and demand respect. And the men of progression, who are pure-minded, liberal-hearted and purposeful, are wishing us God speed on our way. Purity of thought will allow the individual to dress according to its needs.

I believe in the dress that serves the purpose and beauty of the individual. This is to be the dress reform of the future. Utility will demand a service of its own. Art will ornament. We are leaving the imitative process behind. Personality and responsiveness to the good and beautiful are moving us on at a very rapid rate. The time will come when fashion, as we now understand it, is a thing of the past.

The ideal woman of to-day is the vital, healthful woman, full of

originality of thought; her rouge is the elixir of life that tinges the petals of the rose; the movements of her body are attuned to the infinite laws of nature; her smiles are the sunbeams of a free soul. What is to be the *dress reform* of the future? It will be individual, according to the laws of health, service, beauty.

WINNEFREDE W. METCALF.

WOMEN AND PUBLIC SPEAKING.

THE average woman of to-day no longer obeys Paul's injunction. She speaks "right out in meeting" instead of waiting to ask her husband at home. Women's clubs are largely responsible for this state of affairs. To the training she receives in her club, many a woman owes her increased self-possession and self-reliance and her ability to express her thoughts clearly and concisely.

But there is one class of women—the women of the farming districts—whom the club does not reach, and under existing circumstances probably never will reach. The women of the farm meet with their neighbors only at church, in the sewing society, or at a quilting bee. They take no part in public meetings or gatherings but, when they attend, sit quietly and timidly in their places. Even if the question under discussion be ever so interesting to a woman, she seldom overcomes the inertia of habit enough to rise to her feet to voice her sentiments and opinions. Even at church and prayer-meeting many women stand to "testify" only, as I heard one dear old lady express it, "because I know it is the evil one that is trying to influence me to be silent."

Any one who has had experience in farmers' institute work has been struck by the fact that the women, when they attend the meetings, come only as silent spectators. Many of them are bright, intelligent women and attend session after session of the meetings, taking a deep interest in the proceedings, evidently *wanting* to have their say, but not *daring* to get up even to ask a question. At a meeting of one of the recent institutes held in the State, the writer sat beside a bright-eyed young woman who seemed to be taking an intense interest in the papers and questions being presented. A paper had just been read by one of the leading farmers of the community, and the subject he presented had been placed before the audience for discussion. A number

of questions were asked and answered, when the young woman turned to her husband, who sat just back of her, and whispered: "Ask him why—," and she gave her question. The husband obediently rose to his feet and repeated the question, which called forth a spirited discussion between the men present.

In our county educational meetings we see the same state of affairs. Very few of the district school-teachers can—or rather try to—intelligently discuss educational questions before their fellow teachers. Papers are read by the women and discussed by the men teachers. Many women in their own homes talk entertainingly and logically on many subjects, but when they try to speak extemporaneously in public they fail utterly.

We can see a reason for this state of affairs. The farmer's wife lives an isolated life; she lives too much to herself, and often she does not keep up with the progress of the outside world by reading. This solitary life makes her shy and diffident. She attends church, visits her neighbors, goes to town for the household supplies, attends, sometimes, the annual school meeting, the sewing society, and the ladies' missionary meetings. And right here, in the sewing society and missionary meeting, is where an entering wedge might be driven. Instead of sewing and, I am sorry to say, often gossiping all day or all afternoon, why not devote a part of the time to drill in parliamentary rules and to the study of current questions of importance, or of some good books? In this way, although they have no club, the farmers' wives and daughters would receive many of the benefits of club work. In almost every community there is a woman who has had the advantages of college and society training. How could she put her society training to better use than by directing and helping a meeting of this kind? After a little drill at the fortnightly or monthly meetings, the women would soon learn to address the chair properly, make and second motions and leave the floor to the one who *has* it, and not all talk at once. In this way the woman who has the floor will learn to express her thoughts and keep a clear head with a dozen or forty pairs of eyes upon her.

Being able to express one's self clearly and forcibly and briefly in public on public questions is an art greatly to be desired by both men and women. And the woman who has acquired this art can greatly increase her power for good in the community in which she lives.

MAY SECREST.

THE INDUSTRIALIST.

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PRES. E. R. NICHOLS.....Editor-in-Chief
PROF. J. D. WALTERS.....Local Editor
PROF. J. T. WILLARD.....Alumni Editor

LOCAL NOTES.

Born, to Mr. and Mrs. Sam Adams, on May 10, a son.

Professor McKeever spent Monday of last week in Holton.

Prof. A. B. Brown spent Thursday and Friday in Kansas City attending their May festival.

Miss Josephine T. Berry is enjoying a visit from her mother, Mrs. Ed Berry, of Waterville.

The juniors entertained the seniors to a Lepidoptera party last Thursday evening in Domestic Science Hall.

Regent Wm. Hunter visited College on business last Thursday forenoon and left for Topeka on the noon train.

Highland Park College, of Iowa, will meet K. S. A. C. on the diamond at athletic park on May 23, at 3:30 P. M.

The Horticultural Department has had many calls for cabbage and tomato plants. Some have been sent to Ellsworth county.

A fine lot of cannas and dahlias were received last week from J. C. Vaughan, of Chicago, and are being planted in the beds on the campus.

Of the one hundred fifty-six pupils of the Riley county schools who took the examination for district school diplomas, forty-one were successful.

The senior class in breeds and breedings began last Friday afternoon to score some of the blooded stock recently donated to the Agricultural College.

The girls of the calisthenics classes are practicing basket-ball nearly every day. They expect to give a public game on the campus during Commencement.

The rains have put the nursery and gardens in fine condition, the strawberries are coming on nicely, and work is plenty with the Horticultural Department.

Professor Lockwood will preach the memorial sermon at Jewell City on Sunday, May 26, and deliver the memorial address at Wabaunsee on Decoration Day, May 30.

Dr. S. W. Williston and Prof. F. W. Blackman, of the State University, were in town last week and made a trip up the Wild Cat in the interest of the State Historical Society.

Doctor Weida is still a bachelor. His wife did not return with him from Lawrence, as the Manhattan papers state, but will remain another week with relatives at the Athens of Kansas.

The past week was an unusually good one for fattening cattle. The one hundred thirty head of yearlings being fattened by the Farm Department gained an average of three and a half pounds per head per day.

The milk record of the College herd for April shows two cows that produced over a thousand pounds of milk apiece for the month. The highest yield of butter from any one cow was a little over forty-four pounds.

The Students' Co-operative Association has elected the following officers for the coming year: President, R. K. Taber; manager of dining-hall, J. F. Ross; manager of book-store, C. F. Smith; secretary, T. J. Woodworth.

On account of the rain last Friday afternoon the advertised game of basket-ball between the first and second young lady teams had to be indefinitely postponed. Miss Williams hopes to give it some time during the present week.

The Nebraska University baseball team defeated K. S. A. C. at athletic park last Saturday afternoon by a score of 11 to 3. The cornhuskers were ball players and this, added to bunching of errors on our part, gave them the game.

The ruins of the chemical laboratory promised to present a real "ivy-covered ruins" appearance for Commencement week, but progress has the right of way and the vines have been closely trimmed to give the contractor a chance to work.

The College battalion, with colors and band, will take an active part in the Decoration Day exercises of the city. The parade will form promptly at 9 A. M. and start on its march at 9:45. At 2 P. M. there will be a memorial address in the opera-house by Major Tom Anderson, of Topeka.

The victory of the College baseball team over the Haskell red men to the tune of five to three was the result of fine, snappy and steady playing on the part of the home team. Fully twelve hundred people attended the game. The new grand stand at athletic park was highly appreciated by those who could secure seats, but there were not enough of these to go around. The park company should build another half-mile of seats right away.

The dairy-school boys seem to be scattered all over the country. Messrs. E. B. Patten and D. L. Kent report favorably from Compton, Cal.; Mr. J. W. Mills writes from Fulton, South Dakota, that he is butter maker for the Fulton Creamery Company; Mr. W. H. Putman sends greetings from Merkel, Texas, where he is employed as cheese maker for the Merkel Creamery; Mr. H. E. Richter states in a recent letter of doing some hard work for the Continental Creamery Company at Mankato.

The following promotions in the College battalion were announced last week: Corporal Corbin of Co. A, promoted to sergeant, vice Baker resigned; Private C. O. Baird of Co. A, promoted to corporal, vice Corbin promoted; Private Swanson of Co. C, promoted to corporal, vice Houser resigned.

Professor Minnie Stoner attended the meetings of the Kansas Federation of Women at Leavenworth and was elected a member of the committee on course of study for the State Industrial School for Girls, at Beloit, the Federation having been requested by the officers of that institution to elect a committee.

The Manhattan Library Association gave a May Festival at Wareham's opera-house on Monday, May 20. The entertainment, in which over one hundred persons took an active part, consisted of instrumental and vocal music, readings, military maneuvers, and tableaux, and was under the direction of Prof. A. B. Brown.

The stockholders of the *Students' Herald* met on May 9 and elected the following students to places on the staff: Editor-in-chief, E. N. Rodell; business manager, P. H. Ross; associate business manager, H. T. Nielsen; associate literary editor, A. F. Turner; local editor, R. F. Bourne (re-elected). The remaining members of the staff hold over.

Monday afternoon of last week Mr. Eugene Rust, superintendent of the Kansas City stock-yards, H. G. Kaill and S. R. Hill, general freight and live stock agents of the Union Pacific railroad, and A. J. Knollin, of Kansas City, were here in the city inspecting the feed yards and ranch of C. P. Dewey with a view to carrying on extensive sheep feeding here. The gentlemen visited the College in the afternoon and took a drive through the city park.

Last Tuesday afternoon we had the pleasure of listening for a while to a demonstration lecture by a senior student in the Domestic Science course—Miss Katharine Winter. The subject of her lecture was "High-grade Cookery." The discourse was illustrated by fancy sandwiches, tomato salad in Russian style, orange trifle, almond cake, orangeade, and a long et cetera of similar "ifles" and "ades" which the writer does not remember. He can testify, however, that the illustrative material was in full accord with the title of the lecture—first class in every respect.

President Nichols and wife entertained the Faculty and their wives, about forty in number, at their mansion, last Tuesday evening. The informal program consisted of chats, games, musical selections and dainty refreshments. One of the numbers consisted in a contest at threading small needles. Every one present was given a number of needles and some white thread. At a signal the threading began and at a second signal it stopped, each participant giving the number of threads successfully piloted through the narrows. Mrs. Roberts was proclaimed the champion of this modern Olympic game and given a prize. The merry guests remained together until the town gong sounded the arrival of the small hour of the night.

The next meeting of the Horticultural Society will be held Thursday, May 23. The program will consist of the following papers: "My Friends, the Flowers," by Mrs. R. B. Spilman; "Fungous Diseases," by Prof. E. A. Popenoe; "The Garden and the Kitchen," by Miss Mary Pritner.

Supt. C. G. Swingle, of Riley county, has an excellent article in the last *Nationalist* discussing the late examinations in this county for county diplomas. It deserves to be read by every parent, teacher and educator in the State. Its trend concerns the Agricultural College, in that we admit to our first-year classes without examination all who successfully pass the county examination.

The target team of the Agricultural College will have but four others to compete with in the rifle shoot this spring. The institutions represented are, the University of Wisconsin, Mississippi Agricultural College, Virginia Polytechnic Institute, University of California, and the Kansas State Agricultural College. Each team shoots at its own target range under the direction of the commanding officer, who forwards the score made by his team to Capt. Geo. E. Sage, U. S. A., San Rafael, Cal.

The flowering shrubs have added much beauty to the campus the past few weeks and some unusually fine specimens have been noted in the arboretum. The lilacs and spireas have done their share, and now the tamarix and philadelphus are coming on. The cladastris just north of the main drive is nearly open, and the tulip trees are well filled with their yellow blossoms. The Colorado blue spruce are especially fine this year and the new shoots on the pines present a candle-like appearance.

Promise of fruit of all kinds was never better at this time of the year in this State. Apricots and raspberries do not promise over one-fourth of a crop, and in some low spots peaches will fail; otherwise, all kinds of fruit promise a full crop. One hundred twenty letters, from seventy-five counties, fully distributed over the State, report as follows: *Apples*—77 report full crop; 13, seven-eighths; 12, three-fourths; 8, one-half; 2, one-fourth. *Pears*—68 report full crop; 4, seven-eighths; 13, three-fourths; 11, one-half; 2, one-fourth; 1, one tenth. *Peaches*—78 report full crop; 8, seven-eighths; 12, three-fourths; 6, one-half; 6, one-fourth. *Plums*—83 report full crop; 8, seven-eighths; 12, three-fourths; 5, one-half; 2, one-fourth. *Cherries*—99 report full crop; 9, seven-eighths; 10, three-fourths; 11, one-half; 1, one-fourth; 4, one-tenth. *Apricots*—31 report full crop; 9, seven-eighths; 10, three-fourths; 1, one half; 1, one-fourth; 1, one fifth; 4, one-tenth. *Mulberries*—83 report full crop; 4, seven-eighths; 1, three fourths; 3, one-half; 1, one-fourth. *Grapes*—75, report full crop; 8, seven-eighths; 9, three-fourths; 1, one-half; 1, one-fourth. *Berries*, excepting raspberries—74 report full crop; 10, seven-eighths; 13, three-fourths; 4, one-half. The central and western counties are especially elated over the peach and cherry prospect. Very few insects are noticed.

The bids for the rebuilding of the old chemical laboratory into a gymnasium for the girls were opened by Regents Hunter and Nichols last Thursday noon. There were three bids, the lowest being that of F. H. Dale, of Manhattan. Mr. Dale's bid of $4395 for the entire completion of the building, except the heating and plumbing, was accepted. He intends to start work at once and push it as rapidly as possible. The contract calls for the finishing of the job by September 1.

The forthcoming catalogue of the Agricultural College will contain the names of 1321 students, an increase of 227 over last year. These will be classified as follows: Postgraduates, 40; seniors, 74; juniors, 80; second years, 183; first years, 348; preparatory, 318; specials, 21; hospitants, 2; dairy course, 72; farmer's short course, 109; domestic science short course, 47; apprentices, 78. About three-fourths of all students, *i. e.*, 955, were young men, and about one-fourth, or 366, young women.

ALUMNI AND FORMER STUDENTS.

Dr. S. W. Williston, '72, dean of the department of medicine, University of Kansas, has been appointed by Governor Stanley a member of the State board of medical registration and examination.

G. R. Crawford, fourth-year student in 1898, and recently second lieutenant in the Thirty-third United States Volunteers, is at home for a few weeks. He looks as though campaigning in the Philippines had agreed with his health, and says that the opportunities there for a young man are of the best.

The daily papers contain a notice of the unequaled work of E. F. Nichols, '88, professor of physics in Dartmouth College, in the measurement of the heat that the earth receives from the stars. The article is in part as follows: "The heat from these far-off bodies has not only been detected, but measured, it is claimed. It has been measured by one of the most delicate and sensitive astronomical instruments ever made—an instrument capable of measuring the heat of a candle a mile away. The experiments were performed at the Yerkes observatory of the University of Chicago, where Professor Nichols spent two of his summer vacations, and have for the first time proved, beyond a doubt, that the planets and some of the fixed stars send an appreciable quantity of heat to the earth. The quantity, however, is so minute that the wonder is that an instrument could be made sensitive enough to detect it. The instrument which can record such an infinitesimal amount of heat is called a radiometer. Though based to some extent upon the same principles as the bolometer and radiomicrometer, which have been so successfully used in measuring heat rays, in construction it is essentially different and for this purpose has proved far more effective." At his request, Professor Nichols has made a radiometer for Professor Langley, one of the foremost investigators in this line of research and secretary of the Smithsonion Institution.

WHEN TO CUT ALFALFA

(Press Bulletin No. 87, issued by Farm Department.)

Alfalfa should be cut when not more than one-tenth of the plants have come in bloom. Cut at this early stage, the yield of hay for the season will be much greater than if the alfalfa is cut near maturity, and every pound of hay secured will be worth more for feed.

At the Kansas Experiment Station, a strip through a field of alfalfa was cut when one-tenth was in bloom, another strip was cut after full bloom had past. The strip cut early was nearly ready to cut the second time when that cut after full bloom was being harvested the first time. The strip cut early grew vigorously through the season and made three cuttings and a good aftermath. The strip cut after full bloom gave a low yield the first cutting and did not grow sufficiently to yield a good second cutting. Early cuttings seem to invigorate the plant.

The late cutting of the first crop seems to injure the plant more than at any other time, and we have found it profitable to cut alfalfa the first time as soon as one-tenth was in bloom, even though the weather was bad and we knew that the crop would spoil in curing. The increased yield from succeeding cuttings over that cut late much more than makes up for the loss of the first crop.

Successful clover growers, the first time they try alfalfa, often ruin the stand, so that it has to be plowed up, by waiting to cut until it reaches the stage at which clover is usually cut.

The great value of alfalfa is the large amount of protein it contains, that material in feed that is absolutely necessary for the formation of blood, lean meat and milk. The higher the protein in alfalfa, the more valuable the crop. The Chemical Department of this Station found the effect of cutting alfalfa at different stages, as follows:

	Protein.
One-tenth in bloom	18.5 per cent
One-half in bloom	17.2 " "
In full bloom	14.4 " "

The Colorado Experiment Station found the effect of cutting alfalfa as follows:

	Protein.
Coming in bloom	18.5 per cent
Half in bloom	14.6 " "
In full bloom	12.9 " "

The Utah Experiment Station for five years cut alfalfa at different stages of maturity and fed the crop in producing beef. The average production per year per acre was as follows:

	Hay, Tons.	*Beef, Pounds.*
In first bloom	5.35	706
In full bloom	4.90	562
Half blooms fallen	4.55	490

These experiments made in three states—Kansas, Colorado, and Utah—prove that alfalfa cut in the first bloom will give the greatest yield and feeding value. The leaves of alfalfa contain more than three times as much protein as the stems, a ton of alfalfa leaves containing as much protein as 2800 pounds of bran. Every care should be taken in curing alfalfa to save the leaves.

H. M. COTTRELL.

CONDIMENTAL STOCK FOODS EOR DAIRY COWS

(Press Bulletin No. 88, issued by Farm Department.)

Experience with Acme Stock Food: On November 1, 1900, sixteen cows from the herd of the Kansas Agricultural College were divided into two lots as nearly equal as possible on the basis of the yields of milk and butter fat for the month of October. One lot (cows fed Acme Food) had the advantage by 212 pounds of milk and 17.4 pounds of butter fat for the month. Both lots were fed on alfalfa hay with a grain ration of equal parts of corn chop and bran. In addition to this feed, one lot received Acme Stock Food fed according to directions. On December 1, oats took the place of bran in the grain ration of both lots. The results for the three months (92 days) under experiment are as follows:

Eight cows receiving Acme Food.		*Eight cows without Acme Food.*	
Milk produced, pounds	14,271	Milk produced, pounds	14,395
Test, per cent	4.39	Test, per cent	4.13
Butter fat produced, pounds	626.7	Butter fat produced, pounds	595.9
Cost per pound of fat, cents	14.6	Cost per pound of fat, cents	12.3

The Acme Food lot consumed 136 pounds of Acme Food, which at 11 cents (wholesale price) amounts to $14.96. Deduct this from the feed cost and the expense for feed in producing a pound of butter fat is reduced to 11.68 cents. The difference in the total production of butter fat can readily be accounted for by the difference in the lots at the commencement of the experiment, but granting that it is due to the effects of the Acme Food, it would make the extra butter fat cost 48 cents per pound.

Experience with Globe Stock Food: Taking the record for the month of January as the basis, a herd of twenty cows was divided into two lots as nearly equal as possible, there being only a difference of 1.4 pounds of butter fat in the total yield for the month. All the cows received alfalfa hay for roughness and equal quantities of corn- and cob-meal and oats for the grain ration. One lot received the Globe Stock Food in addition. The results for two months (59 days) are as follows:

Ten cows with Globe Food.		*Ten cows without Globe Food.*	
Milk produced, pounds	12,784	Milk produced, pounds	12,896
Test, per cent	4.05	Test, per cent	3.96
Butter fat produced, pounds	518.1	Butter fat produced, pounds	511.3
Cost per pound of fat, cents	11.7	Cost per pound of fat, cents	11

If the Globe Food be eliminated from this experiment, the cost of producing a pound of butter fat is the same in both lots. The totals for two months show that the cows receiving the Globe Food produced 6.8 pounds the most butter fat. Globe Food sells for 9 cents per pound (wholesale rates). The ten cows consumed 43.3 pounds, worth $3.89, or a cost of 57 cents for each extra pound of butter fat produced.

The test of these two Stock Foods indicate that they are worthless for dairy cows accustomed to a good balanced ration. The experience of the Kansas Experiment Station coincides with the experience of other stations where a still larger number of these Stock Foods have been tested. When financial gain is the object, it will pay the farmer to confine himself to those feeds that have been thoroughly tested, whose merits are known, and which can be raised or purchased at reasonable prices, rather than to pay exorbitant sums for so-called Stock Foods whose merits, to say the least, are very doubtful.

D. H. OTIS.

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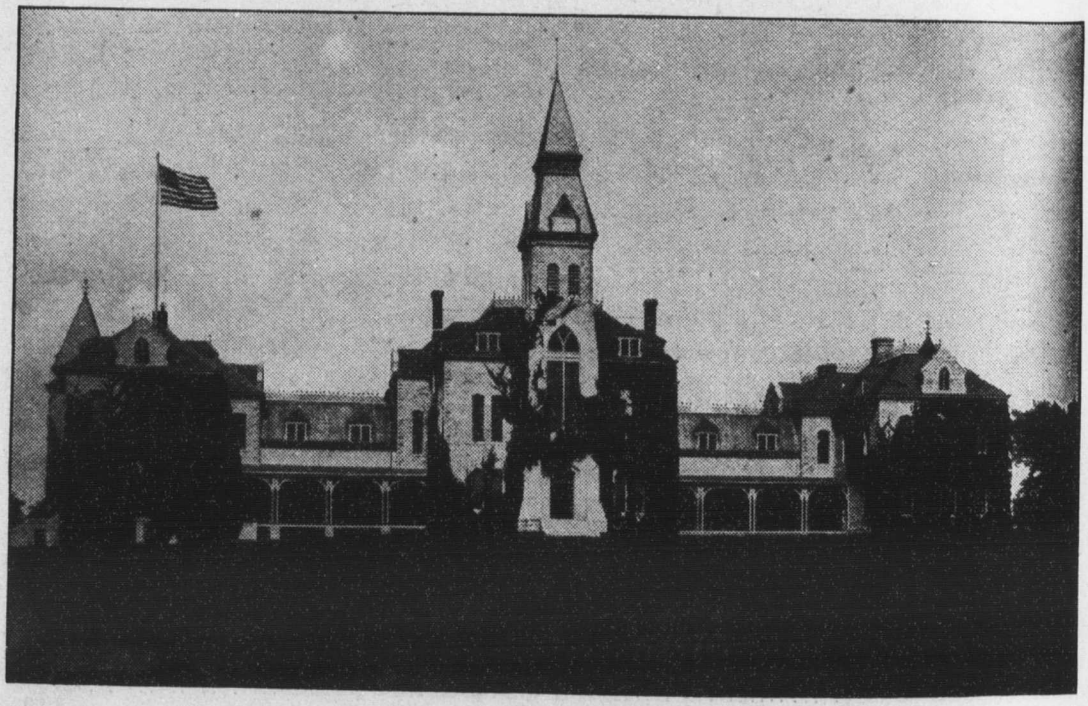

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Alumni and Former Students, *Prof. J. T. Willard*

☆ ☆ ☆

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THE INDUSTRIALIST.

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VALUE OF ATHLETICS.

THE value of athletics and out-of-door sports (provided they are not carried to excess) cannot be overestimated, and it is encouraging to see the prominent place they are taking in our schools and colleges. The great truth that a good mental condition cannot exist without a good physical condition is rapidly being accepted, and athletics and physical training are being generally introduced as a means of perfecting the physical and mental.

There are many things in favor and many things against athletics. Judgment must be used in this as in all other branches of work, as this, like every thing else, can be overdone and abused. The greatest element of evil in the spirit of athletics is the idea that one must *win* at any cost; that defeat is an unspeakable disgrace. Most of the brutality in football and other out-of-door games comes from this. "The spirit of fair play should be cultivated. Hard, earnest playing is not objectionable. Such playing is what is necessary to bring out fearlessness and courage. Elements in competitive games which tend to bring out the love of honor, courage and fair play should be encouraged, and those which encourage the taking advantage of laws, cruelty, brutality and unfairness should be eliminated."

One great objection to competitive games is that they result in physical break-downs on account of lack of training. Training is necessary, as without it the violent exercise of foot-ball, basket-ball, etc., will be injurious. Games help to train a certain amount of endurance, and if played with a strong body are beneficial. Moderate use of athletics and games increase the size of the lungs and strength of the heart, and are conducive to good health and development.

Many games and exercises have been condemned on account of the one-sided development and deformities they produce.

La Grange, in his "Physiology of bodily exercise," says:

"Fencing produces deformities. Everyone who has fenced much shows in a more or less pronounced degree a lateral curvature of the spine. Hardly indicated in some cases, these tendencies may become serious deformities in others. There is only one way of avoiding the deviation which occurs in a man who fences with one hand only; this is to use alternately the right hand and the left." The same may be said of bowling, tennis, battle-ball, etc. Horse-back riding (especially with a side-saddle) is classed among the exercises which produce deformity, as it brings on curvature of the spine if done a great deal.

Again quoting from La Grange: "We may say generally that an exercise or game will produce more or less marked deformity whenever it is performed under the following conditions: (1) Concentration of muscular effect in a very localized region, the other parts of the body not sharing in the work. (2) Necessity of maintaining during the exercise an attitude in which the axis of the body deviates from its normal direction. (3) Frequent and prolonged performance of movements which man does not naturally practice and to which his conformation is not adapted."

Boxing is considered good exercise, as it is performed alternately by the right and left sides of the body. Swimming and climbing are two of the best exercises, as they call for a regular action of all of the muscles. The body must progress in these exercises by a movement of extension which, beginning in the legs spreads to the thighs, the vertebral column, and the arms. Rowing is splendid for all-round development. It not only increases the size and strength of the biceps, but the whole body. Running is considered by many to be the very best exercise for expanding the chest and strengthening the lungs. The physiological effects of exercise and games are manifold, viz:

"On the lungs.—Every muscular exertion is involuntarily preceded by an increased inhalation. In other words, exercise induces respiration, and in consequence the pulmonary circulation becomes accelerated and the quantity of air inhaled and of carbon dioxide exhaled is greatly increased.

"On the blood and circulatory organs.—Every active movement increases the action of the heart, and the blood more quickly carries away waste matter and throws it off through the organs of excretion.

"Excessive as well as deficient exercise will weaken the heart

and cause diseases, such as palpitation, hypertrophy, dilation, fatty degeneration, etc.

"On the digestive organs.—At every inspiration the diaphragm flattens and exerts a pressure on the contents of the abdomen. This motion aids the peristaltic movement of the stomach and intestines in carrying the food downward and in hastening the process of digestion.

"On the skin.—The increased prespiration eliminates the impurities of the body.

"On the mind.—As the general circulation and the quality of the blood improves the brain becomes better nourished and its power of action increases, so that it is only in a healthy body that we find a healthy mind; whereas, if the body is weakened by disease—by inactivity—the intellectual powers become enfeebled. Many maintain that it is not possible to combine great mental work with powerful bodily exercise, but practical experiments have proved this to be an entirely mistaken idea; for if the two are made judiciously to alternate, it will be found that the results of each become much more extensive—much better in quality. If athletes are stupid, it is because they make no efforts toward mental cultivation and not because exercise lessens their powers in this direction. It is the weak and not those who are strong in body and mind that recruit the jails. Exercise develops a consciousness of power which inspires courage, consciousness, and resolution. Through its influence the moral self comes forth healthier, purer, and stronger, and man becomes in every way better fitted to lead a life of usefulness to his fellow men."

Dr. Elsom, of the University of Wisconsin, when asked, "Is there not a sacrifice in carrying physical training into competitive sports?" replied: "There are compensations even for the sacrifice. The character training of the athlete is something to consider. He must be resolute, self-denying, and he must exercise patience, govern his temper, display fortitude, control and master himself ethically as well as physically. In these things he gets a training in character, and unless he loses his balance in the ordeals and excitements of the athletic experience he is the more of a man when the University is left behind and the battle of life before him."

Speaking of athletic sports, Theodore Roosevelt has said: "The great growth in the love of athletic sports, for instance, while

fraught with danger if it becomes one-sided and unhealthy, has, beyond all question, had an excellent effect in increased manliness. Forty or fifty years ago the writer on American morals was sure to deplore the effeminacy and luxury of young Americans who were born of rich parents. The boy who was well off then, especially in the big eastern cities, lived too luxuriously, took to billiards as his chief innocent recreation and felt small shame in his inability to take part in rough pastimes and field sports. Nowadays, whatever other faults the son of rich parents may tend to develop, he is at least forced by the opinion of all his associates of his own age to bear himself well in manly exercise and to develop his body, and therefore to a certain extent his character, and in the rough sports which call for pluck, endurance and physical address."

Charles Kingsley has said: "Boys know well that games conduce not merely to the physical but to the moral health; that in the ball fields boys acquire virtues that no books can give them—control of temper, self-restraint, fairness, honor, envious approbation of another's success, and all that give-and-take life which stands a man in such good stead when he goes forth into the world, and without which indeed success is always maimed and partial."

The views of Charles W. Eliot, president of Harvard University, follow: "I am in favor of college athletics in their broadest possible sense. Nobody appreciates more highly than I do the value of athletics in a university. I value them not chiefly for their physical effect, though that is very valuable, but more for their moral effect; for their effect upon the moral fibre of the individual. The moral fibre of the individual is what tells in this world. It is that which stamps and has stamped the influence of the sons of Harvard for the last two hundred fifty years upon the history of this country and other countries, for fair Harvard is, and always will be, I trust, cosmopolitan. Above all others, perhaps, I like the word which has been used by a rather well-known graduate of Harvard—the 'strenuous' quality in a man. That word indicates the quality which athletics may give a man—the strenuous, robust quality, vigor, sand, grit, courage, determination, and resolution, and with it many a time—more often than the contrary—purity and sweetness. Assuredly, athletics are a most important factor in the higher education.

"It is a fine thing to develop the body. It is even a finer thing to develop the mind; but the great value comes in the fact that athletics develop the character, and this is what counts. Whatever may be said of university men who have done their duty in the crew, on the eleven or on the nine, those men must necessarily have practiced the rugged virtues of courage, resolution, self-domination, the power of acting in conjunction with others, resolution to act as gentlemen, and often, what is more important, to act as men. It is these qualities which make athletics so invaluable. The American youth of to-day, from his very infancy, through his preparatory course and until he enters the university, has the advantages of athletics presented before him in such a light that, if he be not either mentally or physically weak, there can be but one result, and that result makes for the best for the American people of the future. That proper restrictions in regard to the standing of athletes in their classes should be made surely cannot be questioned. But I am proud to say that these are not often needed at Harvard. As a rule, the higher the standing of the athlete in his particular branch of sport, the higher his standing in his class. And this is as it should be."

It seems to me that expressions from such men as these are strong pleas for the value of good athletics for those physically able to indulge in them in our schools and colleges.

GERTRUDE WILLIAMS.

NOTICE TO CONTRACTORS.

Sealed bids for constructing a chemical-physical building will be recieved at the office of the undersigned till 3 o'clock P. M. Friday, June 14, 1901. Bids must be accompanied by a certified check for $1000, payable to the treasure of the College, as a guarantee that the successful bidder will furnish a satisfactory contract and bond. Plans and specification are on file at the office of the architect, J. G. Haskell, Topeka, and at the office of the undersigned. Bids must be sent in on bidding blanks found with plans. The right to reject any or all bills is reserved.

E. R. NICHOLS, Manhattan, Kansas.

THE INDUSTRIALIST.

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PRES. E. R. NICHOLS.....Editor-in-Chief
PROF. J. D. WALTERS.....Local Editor
PROF. J. T. WILLARD.....Alumni Editor

LOCAL NOTES.

The Beatrice Chautauqua will be held from June 21 to July 4

The Experiment Station has recently been asked to supply some "disinfected chinch-bugs."

The Y. W. C. A. gave an ice-cream and strawberry social in Domestic Science Hall on Saturday evening.

Miss Stella Tharp has become a student assistant in analytical chemistry for the remainder of the spring term.

Professor Walters went to Alma last Monday to look after the calligraphic work on the commencement diplomas.

The *Students' Herald* considers the Nebraska University team "the swiftest baseball aggregation that has come our way."

The next regular monthly sale of the Manhattan Live Stock and Sales Company will take place at the arena Saturday, June 1.

The INDUSTRIALIST cheerfully seconds the motion of the *Nationalist* requesting Manhattan to trim the shade-trees along the sidewalks.

About twenty graduates and seniors took the State examination for teachers' certificates last week. The examinations were in charge of Professor McKeever.

Prof. A. S. Hitchcock expects to arrive here about the fourth or fifth of June, and will be warmly welcomed by all of his friends—and whom does that not include?

The Printing Department ran two presses and a large force of folders until midnight Saturday getting out a rush order for a 22,000 edition of a press bulletin on "When to Cut Alfalfa."

Manhattan will have free mail delivery by July 1, and the township, which already has one mail route, will get three more, having a combined length of one hundred eighty-one miles. This will place four-fifths of the township in daily connection with the mail system.

E. W. Westgate, master of the Kansas State Grange, has arranged to have the lecturer of the National Grange hold ten grand rallies during July at ten of the leading Grange centers of Kansas. A member of the Farm Department is requested to speak at these meetings. It is probable that at least 25,000 people will attend.

Director Willard, of the Experiment Station, recieves many queer communications. Last week a gentleman from the East asked the station to secure him a sitting of prairie-hen eggs.

A. O. & H. L. Perrin, Prescott, Kan., have donated to the Farm Department the best pig from their herd of Duroc-Jersey swine. She is a beauty and is the first Duroc-Jersey to be owned by the College.

A. J. Myers, of the dairy class of 1901, has written for help to hold a farmers' institute at Americus, where he is operating a skimming station. He promises a large attendance and a well-filled program.

The graduating exercises of the Manhattan city schools were held at Wareham's opera house, Thursday, May 23. The class which completed the course numbered twenty-six—nineteen girls and seven boys.

President Nichols addressed the students in chapel last Tuesday morning on true college spirit and proper college atmosphere. His remarks were listened to with attention and brought forth a hearty applause.

The Farm Department has received from Geo. H. Barth, Iola, Kan., a donation of the best pig in his pure-bred Poland-China herd. Mr. Barth has selected this pig to show our students his ideal in form of an easy-keeping and quick-fattening animal.

Contractor F. H. Dale, of the new gymnasium, commenced his work on Monday morning. It will take a force of half a dozen men several days to remove and assort the debris of the ruins. The stone work will be done by a subcontractor, J. Hawn, of Manhattan.

Mr. Bradford Miller has arranged to secure Dr. Henry Wallace of the *Wallace Farmer*, for six days in farmers' institute work in Brown and Shawnee counties in December. Mr. Miller requests that the Farm Department send a speaker to attend these institutes.

Professors Eyer and Otis gave their Sunday-school classes an outing to Eureka Lake last Monday afternoon. They went in two large hayricks, took their suppers, and stayed during the evening. Among the amusements indulged in by the young people were fishing and boat-riding. All report a delightful time. —*Students' Herald.*

C. A. Stannard, Emporia, Kan., proprietor of the famous Sunny Slope herd and farm, has donated to the Farm Department a pure-bred Berkshire sow. He is selling pigs of the same breeding for $50 each. Mr. Stannard is one of the great breeders in America and is widely known in foreign countries and our students have a great opportunity to study, in the pig donated, his ideas of a model Berkshire.

Professor Evan Nelson, of Wyoming, was a visitor at the College last Friday. He passed through the city on his home trip from St. Louis, Mo., where he had attended the annual meeting of botanists at Shaw's Botanical Institute. Doctor Nelson is professor of botany in Wyoming State University.

Rev. R. J. Phipps, D. D., of Hebron, Neb., will deliver the baccalaureate sermon at College chapel on Sunday, June 9, at 4 o'clock P. M. Doctor Phipps is personally known to many of the College people as the former pastor of the Manhattan Presbyterian church. He is a first-class pulpit orator.

The Canada Township Farmers' Picnic Association of Labette county has written for speakers to assist in holding a farmers' institute in August. They have formed a regular association, put up permanent speaker's stand and seats, provided a well, and promised an attendance of hundreds of people.

The seventh battery of U. S. artillery, located at Fort Riley, camped last Monday night in the woods across the Blue river bridge. They were on their march to Topeka to take part in the festivities arranged in honor of President McKinley. Mr. C. P. Dewey showed the officers about College in the afternoon.

Professor and Mrs. Metcalf will leave after the close of College in June, for Burlington, Vt. They go to take charge of the department of oratory at the Lake Champlain chautauqua assembly. After the assembly in August, they will visit friends in Boston and other eastern cities before returning to Kansas.—*Nationalist.*

One of the leading Duroc-Jersey breeders of the State writes offering to donate to the Farm Department the best pig in his large herd. If the department shows that it understands its business and makes the pig make a big growth, he will send his son to our College this winter. It is needless to say that the boy will come.

Bulletin No. 101, by the Horticultural Department, treating on "Experiments and Observations on Plums," will be published during the present week. The copy has been in the State printing-office since last December. It will be followed the week after next by No. 102, by the Botanical Department, on "Grasses and Other Forage Plants." Parties who desire copies of either or both of these pamphlets and who are not on the regular bulletin list of the College should write to the Agriculture College.

The Farm Department has just received a donation from John D. Marshall, Walton, Kan., of the model Poland-China sow, Look Me Over's Maid. Mr. Marshall sent her to show our students his ideal of what a Poland-China should be to make the most profit. Besides being a model in form, Look Me Over's Maid, is highly bred and comes from a prolific family. She is from a litter of nine and her dam has never raised less than fourteen pigs a year. Her brothers and sisters have gone into some of the best pure-bred herds in Kansas, Oklahoma, and Texas.

Mr. Charles Morrison, Phillipburg, Kan.. has donated to the Farm Department a pure-bred Red Polled heifer and a pure-bred Poland-China pig. Mr. Morrison has selected these animals as models for our students to study. We highly appreciate both his generosity and enterprise. He writes that he will send a son to this College next fall.

Mr. R. H. Lindsay, of Kansas City, visited the Experiment Station recently, and the results are appearing in a series of well-written articles on its work that have been published by the Kansas City *Star* and Topeka *Capital*. They constitute the most extended exposition of its work that has yet been given in the daily press, and our appreciative acknowledgments are hereby extended.

The May festival at the Manhattan opera-house Monday evening under the direction of Prof. A. B. Brown was a pleasant musical treat. The whole program, including several pieces by the cadet band and the College orchestra, a vocal solo by Miss Huntress, a harp solo by Mrs. R. H. Brown, and a reading by Miss Edna Barnes, was greatly enjoyed. The festival was for the benefit of the library association.

The following is a condensed program for Commencement week: Sunday, June 9: Baccalaureate sermon. Tuesday, June 11: Examinations; address before the literary societies. Wednesday, June 12: Examinations; class day exercises. Thursday, June 13: Commencement; annual address; public drill by class in calisthenics; drill and sham battle by cadet battalion. A full program will be published next week.

The Farm Department heartily appreciates the way the Rock Island railroad handled our Short-horn bull. This bull was put on the cars at Minneapolis, Minn., and was sent by freight without an attendant. He is valued at $1000 and we were doubtful about shipping him by freight. He arrived in three days and was well fed and watered and kept clean during the trip by the Rock Island people and had apparently not lost a pound during his trip. It is a pleasure to do business with a road that cares for pure-bred stock in this way.

The Farm Department has purchased from the Minnesota College of Agriculture, Golden Champion, a pure-bred Short-horn bull which is the equal of any blooded beef animal brought to the State, and is valued at one thousand dollars. This bull was selected three years ago by Professor Thomas Shaw as the best Short-horn that he could find in the United States and Canada. He has proved himself as great a sire as he is an individual. He was selected by the committee of the Regents as the best bull that they saw in a tour of six states, and the Minnesota College parted with him only because in coming to Kansas he would be owned by another Agricultural College. He will be used to show our students the kind of beef animal to select and breed to make the most money.

Prof. Septimus Sisson, of this College, has resigned his position as professor of zoölogy and physiology to accept a similar chair at the State University of Ohio, at Columbus. Doctor Sisson came to Manhattan two years ago and has proven himself to be a scientific specialist of high rank. The chair which he has occupied here is an important one in an agricultural school and the Board realize that it will not be an easy matter to find a successor who will take up the work with equal energy and zeal. Both the doctor and his estimable wife have been students here and will leave many friends at Manhattan. They intend to leave for Columbus soon after Commencement.

The present college year has been very free from student excesses. As a whole, the students are willing to abide by any regulation that may be made for their good, and there is not a better behaving body of young men and young women in any higher institution of learning in America. We are pained, therefore, to say that several members of the senior class had to be suspended, by act of the Faculty, for a misdemeanor. The present senior class was engaged in considerable class activity last year. Several weeks ago they asked permission to display their class colors during Commencement, from the Main building, and were allowed to do so, but on Sunday night or Monday morning some of them scaled the smoke-stack of the workshops and displayed their colors there, contrary to the rules of the institution enacted eighteen months ago and understood by the students. The Faculty had no alternative and the suspension followed as a necessary act of discipline. The announcement of the suspension of the thirteen seniors who were known to have had part in the misdemeanor was made by President Nichols last Thursday morning after chapel exercises. He spoke to the students in impressive words, giving a review of the whole matter, and showing that a state institution must make unceasing efforts to create respect for law, manhood, truth, and character. His address was listened to with close attention and the attitude of the students showed that an overwhelming majority were in full accord with the views of the Faculty. As an effect of the President's earnest presentation of the case six more seniors appeared in his office and stated that they had been present at the color demonstration. All were suspended until June 6, when they may apply to the Faculty for reinstatement. The Faculty do not wish to interfere with class spirit and class contests that are carried on in proper spirit, but they believe that Hallowe'en misdemeanors and hazing in any form are opposed to proper order and good scholarship.

The forthcoming catalogue of the College will contain the following regulations concerning the classification of students, term and entrance examinations, substitutions of studies, and methods of registering credits: "With the five regular courses that the College now offers, most of the requirements of students are met. For one reason or another, however, some students find it necessary or desirable to substitute something else for the work that their respective courses would require. To place such substitutions

on a systematic basis, the following regulations have been adopted by the faculty: (1) Substitutions shall, as far as practicable, give training similar to that of the work displaced. (2) No student shall be allowed a substitution for work in which he has failed. (3) Unless made necessary by the acts of the Board of Regents or of the Faculty, substitutions shall not be allowed: (*a*) To students who are below the third years; (*b*) to students who have failed in any study of the two terms' work immediately preceding; (*c*) unless arranged for in advance. (4) Students desiring to substitute other work for any requirement in their respective courses of study must persent written requests to the committee on assignments. (5) When a request for substitution is made by any student, the committee on assignments shall consult with all of the professors whose work is touched by the proposed substitution, and if unable to agree with them the case shall be submitted to the Faculty. (6) All substitutions arranged by the committee on assignments shall be reported to the Faculty by posting on the Faculty bulletin-board, and if not objected to within one week shall be reported to the Secretary for record in the students' register. Examinations for admission are held at the beginning of each term, as shown in the calendar of the College year. Applicants at other times during the school year have special examinations. These examinations are chiefly written, and a grade of seventy per cent, at least, must be obtained to pass a study. Examinations in the courses are held twice each term, as announced in the calendar. The results of these examinations, marked on a scale of one hundred, are combined with the grades of the preceding daily exercises into a grade for the period. Grades reported to the Secretary for record are made up by giving the mid-term record a value of one-third and the record for the last half of the term a value of two-thirds. For passing a study, the mean grade so calculated, and also the grade for the last half of the term, must be at least seventy. Any student receiving less than a passing grade on two or more studies may either drop back or withdraw from the College. Any student may receive a certificate of standing, upon leaving College at the close of a term. Students deficient in entrance studies must make good such deficiencies before entering on the work of the second year. Students are not catalogued in the third-year class unless all deficiencies of the preceding years are provided for. Candidates for graduation must make good all deficiencies before entering on the work of the spring term of the fourth year. No student is considered as a candidate for graduation who, after the opening of the fall term, is deficient in more than three full studies in addition to regular work. Extra work is not allowed to any student who failed in any branch the preceding term, or whose average grade for all branches was less than eighty. After entering college, students are allowed special examinations only upon recommendation of the professor in charge, and by permission of the committee on assignments. Permission for examinaton in studies not pursued with a class must be obtained at least two months before the examination is held."

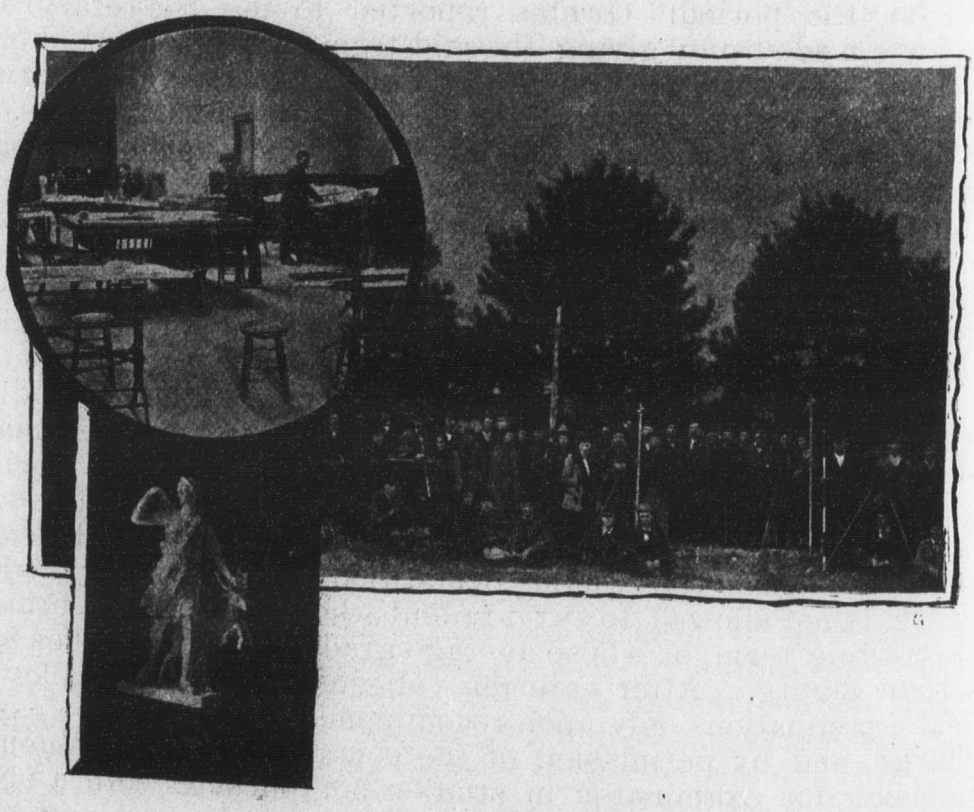
ALUMNI AND FORMER STUDENTS.

D. H. Otis, '92, was referred to in highly complimentary terms by Gov. W. D. Hoard in an address at the East Tennessee Farmers' Convention.

Alice M. Melton, '98, writes from Salina, Kan., where she is taking a three-month's course in stenography and type writing at the Salina Wesleyan Business College. She is well pleased with her opportunities and is pleasantly located.

C. F. Doane, '96, bacteriologist, Maryland Agricultural College, writes an interesting letter concerning some of his work there on the relative digestibility of pasteurized and unpasteurized milk. He hopes for the time when this College will be able to give adequate postgraduate facilities to its students.

Dr. S. Sisson, student in 1883, since graduated from the Toronto Veteninary College and the University of Chicago, for a number of years instructor in anatomy at Toronto, and for the past two years professor of physiology and zoology at this institution, has accepted the chair of anatomy and operative surgery in the veterinary college of Ohio University. In Dr. Sisson the College loses one of its strongest and best equipped men, and a lucid and thorough teacher.



TERMS AND VACATIONS.

Fall Term, 1901, Thirteen Weeks.

WEDNESDAY, SEPTEMBER 18.—Examination for admission, at 9 A.M.
THURSDAY, SEPTEMBER 19.—College year begins.
TUESDAY, SEPTEMBER 24.—Short course in domestic science begins.
SATURDAY, NOVEMBER 2.—Examination.
THURSDAY AND FRIDAY, DECEMBER 19, 20.—Examination at close of term.

Winter Term, 1902, Twelve Weeks.

MONDAY, JANUARY 6.—Examination for admission, at 9 A.M.
TUESDAY, JANUARY 7.—Winter term begins.
TUESDAY, JANUARY 7.—Short courses in agriculture, horticulture and dairying begin.
SATURDAY, FEBRUARY 15.—Examination.
THURSDAY AND FRIDAY, MARCH 27, 28.—Examination at close of term.

Spring Term, 1902, Eleven Weeks.

MONDAY, MARCH 31.—Examination for admission, at 9 A.M.
TUESDAY, APRIL 1.—Spring term begins.
SATURDAY, MAY 10.—Examination.
TUESDAY AND WEDNESDAY, JUNE 17, 18.—Examination at close of year.
JUNE 15 TO 19.—Exercises of commencement week.
THURSDAY, JUNE 19, AT 10 A.M.—Commencement.
JUNE 20 TO SEPTEMBER 17.—Summer vacation.

Fall Term, 1902.

WEDNESDAY, SEPTEMBER 17.—Examination for admission, at 9 A.M.
THURSDAY, SEPTEMBER 18.—College year begins.

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KANSAS STATE AGRICULTURAL COLLEGE

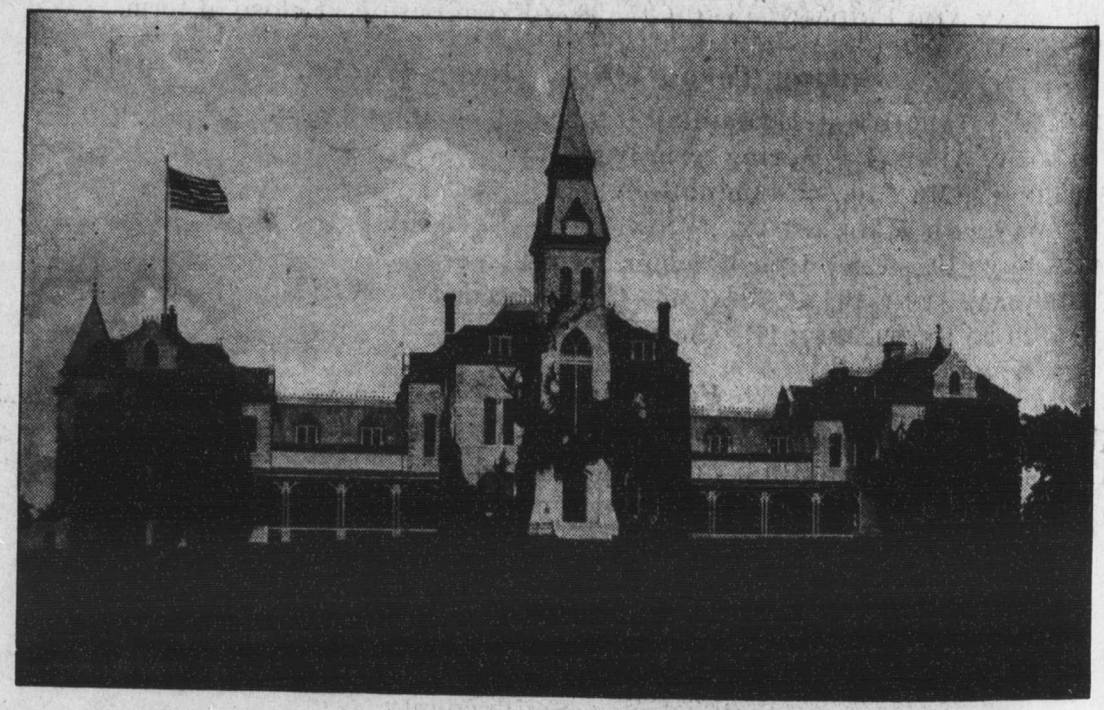
FIVE COURSES OF STUDY.....

Each complete in itself and leading to the degree of Bachelor of Science, are as follows:

1—General Science
2—Agriculture
3—Domestic Science
4—Mechanical Engineering
5—Electrical Engineering

This Institution

is supported by the General Government and by the State of Kansas, and is designed, by its instruction, to promote the liberal and practical education of the industrial classes in the several pursuits of life.



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Are taught each term, and nearly all of the first- and second-year subjects; so that it is possible for one to get nearly all subjects of the first two years by attendance during winter terms only.

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Open to students of mature age who cannot, on account of time or money, take one of the four-year courses.

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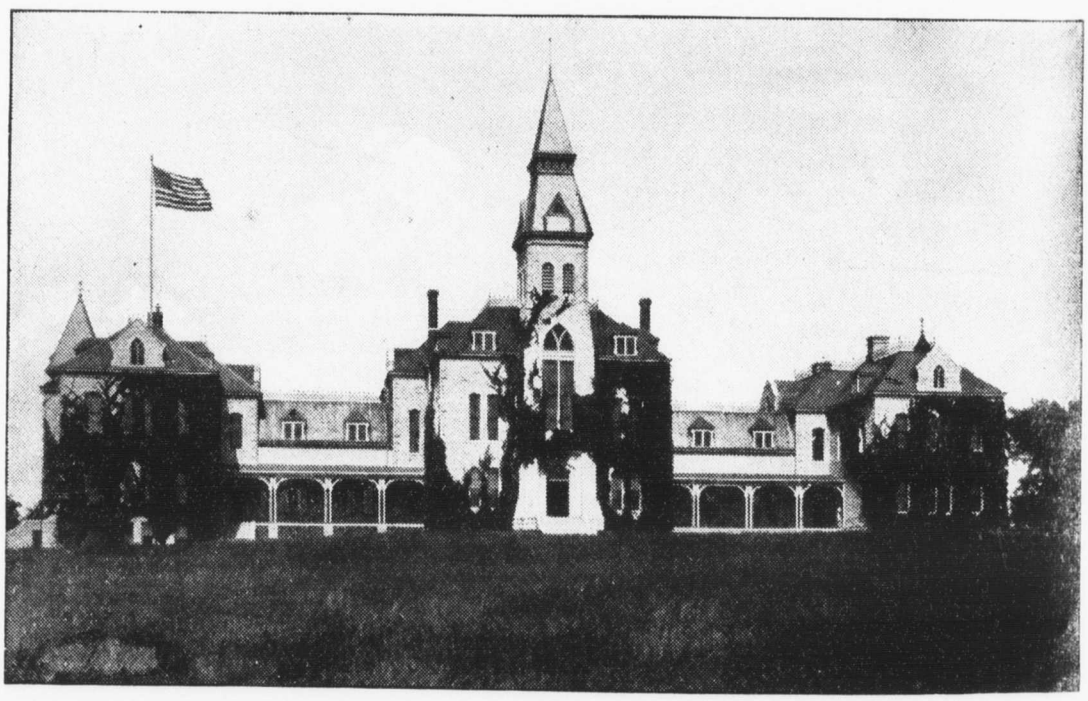

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COMMENCEMENT NUMBER.

THE INDUSTRIALIST

VOLUME 27. NUMBER 34.

ISSUED WEEKLY BY

KANSAS STATE AGRICULTURAL COLLEGE

◇ ◇ ◇

EDITOR-IN-CHIEF, - PRES. E. R. NICHOLS
LOCAL EDITOR, - - PROF. J. D. WALTERS
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THE INDUSTRIALIST.

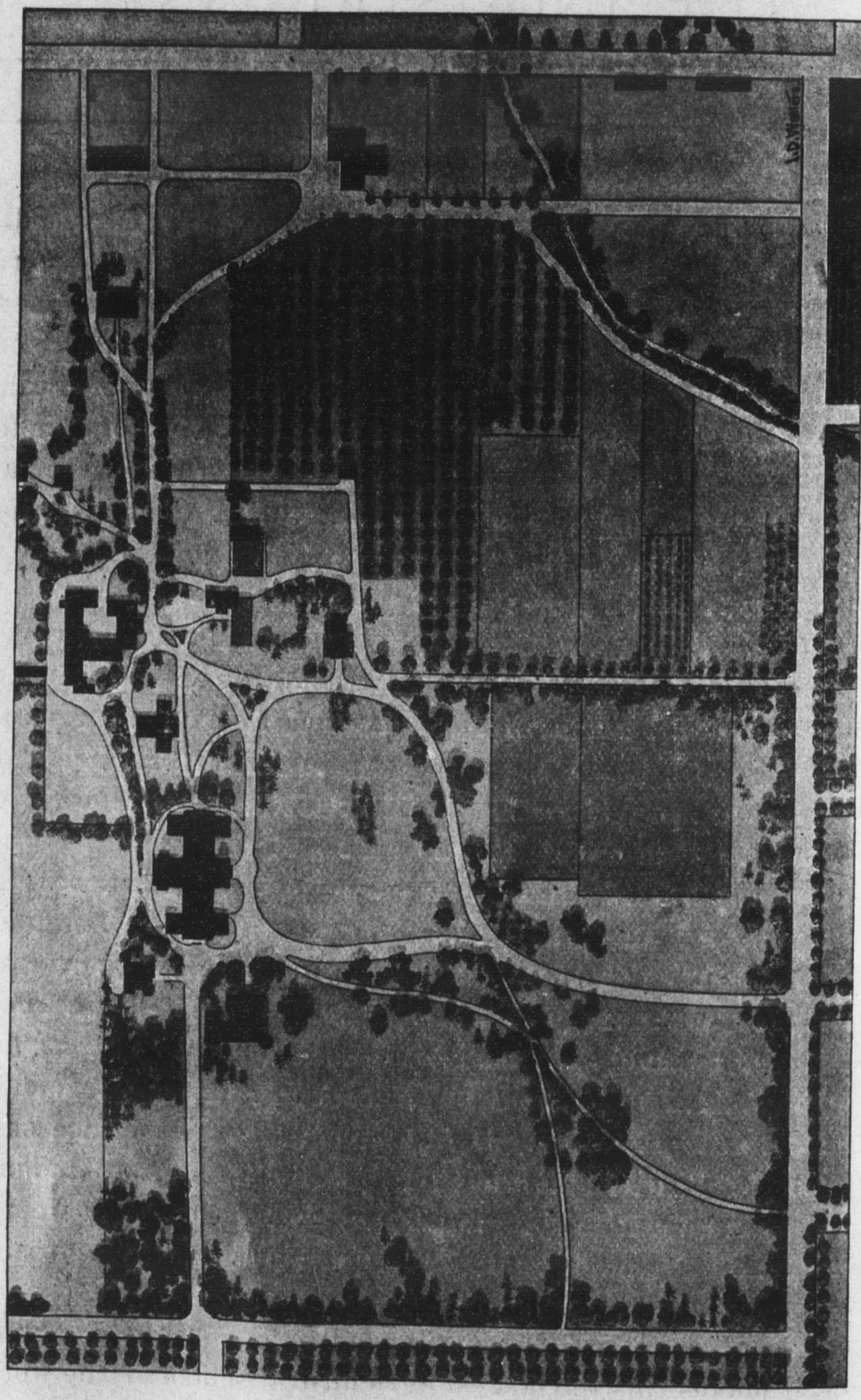
VOL. 27. MANHATTAN, KAN., JUNE 8, 1901. NO. 34

A RETROSPECT.

THE College year drawing to a close has been a period of intense growth for the Agricultural College. All America has been prosperous. The harvests have been good, commerce and the industries have expanded, prices have been satisfactory, money has been plentiful and real estate has increased in value, yet there are but few things in this cyclorama of activity that have paralleled the phenomenal growth of this institution, and the INDUSTRIALIST should be pardoned if in its Commencement number it indulges in a short retrospect of the hopes it realized during the present year.

Attendance.—A public institution of learning should not be exclusive. It should carefully study the needs of the people for whose benefit it has been founded and should make an effort to do the greatest good to the greatest number. In its commendable aspiration to reach out for higher work, it should not forget the large masses of citizens and taxpayers who are giving it their support. The Agricultural College of Kansas is doing this and refers to its growing attendance for proof. The total enrolment for the present year has been 1321, an increase of 227 over last year. The annual catalogue classifies these as follows: Post-graduates, 40; seniors, 74; juniors, 80; second years, 183; first years, 348; preparatory, 318; specials, 21; hospitants, 2; dairy course, 72; farmers' short course, 109; domestic science short course, 47; apprentices, 78. About three-fourths of all students, *i. e.*, 955, were young men and one-fourth, or 366, young women. This attendance places Kansas far ahead of any of the so-called land-grant colleges of America. It is almost as large as the enrolment of all the New England agricultural colleges combined. In fact, it makes this the largest agricultural school of the world.

The increase in attendance has been steady for many years, and at such a rate that, unless conditions over which the College has no control change materially, our friends may hope to see the



The Campus.

.2000 mark passed before the close of the present decade. During the last half-dozen years the enrolment has grown as follows:

Year.	Attendance.	Increase.
1895-96	647	17
1896-97	734	87
1897-98	803	69
1898-99	870	67
1899-00	1094	224
1900-01	1321	227

Instruction.—Hand in hand with this increase of students has gone the adjustment of the work of the College to the needs of the State. The Board of Regents and the Faculty are aware that the Agricultural College was founded for a definite purpose; that it is to be a school "for the benefit of agriculture and the mechanic arts;" that it must do educational work of a certain kind, and do it well. To meet the demands of the farmers and mechanics the courses of study have been diversified and adjusted to a variety of conditions. There have been taught during the past year five courses of four-years' duration and four so-called short courses, namely, an agricultural course, a domestic science course, a mechanical engineering course, an electrical engineering course and a general science course. Of short courses, there have been held one of twelve weeks for dairymen, one of two consecutive winter terms for farmers, one of two consecutive fall terms for young women who wish to study practical housekeeping, and one of eighty weeks for apprentices in the shops and printing-office. The present year is the first one in the history of the College when all of these courses were in full operation.

The Preparatory.—The entrance requirements of the regular four-years course have been considerably increased during the past year, and for those who have no opportunities at home a preparatory school has been maintained. Particulars concerning the work of this school are given in another part of this number of the INDUSTRIALIST. The total enrolment in the preparatory division during the past year has been over three hundred students. The instruction is in charge of an experienced teacher, with whom are associated three assistants, and its influence has greatly strengthened the work of the first-year classes. Some students remain in the preparatory a full year, others only a term or two,

while a majority take a part of their work in the regular College classes from the start.

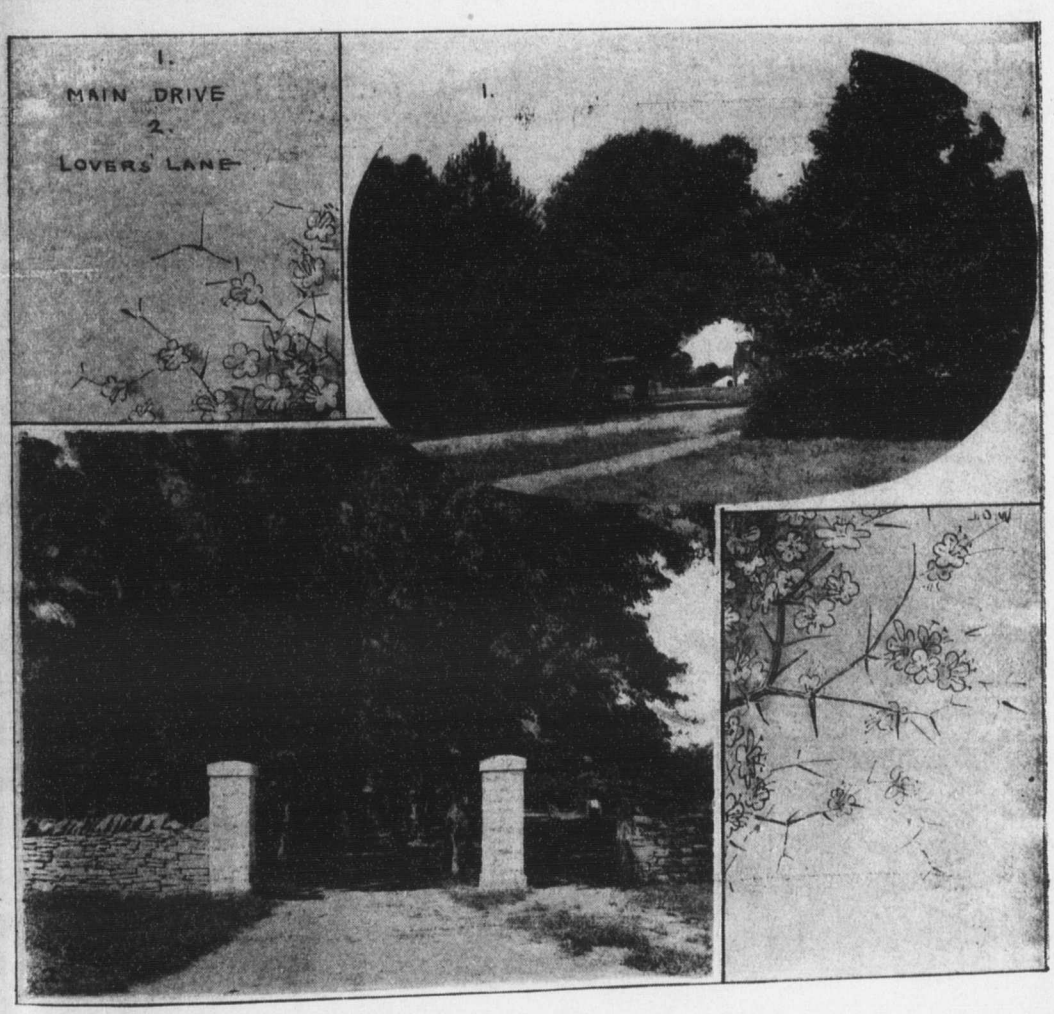
Ways and Means.—The last legislature has been just to the Agricultural College, *i. e.*, it has made appropriations that will enable the institution to do its work and do it well. The appropriations cover the following items:

	For 1901.	*For 1902.*	*For 1903.*
Refitting old chemical building for gymnasium	$5,000 00	.....	.....
Fire protection	600 00	.....	.....
Deficiency, June 30, 1899	14,893 40	.....	.....
Physics and chemistry building	.....	$70,000 00	.....
Addition to library	.....	.....	$10,000 00
Current expenses	.....	25,000 00	30,000 00
Books and periodicals	.....	1,500 00	1,500 00
Salary State veterinarian	.....	1,800 00	1,800 00
Farmers' Institutes	.....	2,000 00	2,000 00
Repairs	.....	3,000 00	3,000 00
Coal	.....	1,800 00	1,800 00
Water	.....	1,000 00	1,000 00
Rent of President's house	.....	330 00	330 00
Salary Loan Commissioner	.....	300 00	300 00
Incidental expenses, care of funds	.....	150 00	150 00
Farm Department	.....	7,000 00	7,000 00
Mechanical Department	.....	1,000 00	1,000 00
Heat and Power Department	.....	1,000 00	1,000 00
Equipment other Departments	.....	2,000 00	2,000 00
Fort Hayes experiment station	.....	3,000 00	3,000 00
Totals	$20,493 40	$120,880 00	$65,880 00
Grand total			$207,253 40

These appropriations, together with an income of about $25,000 from the Morrill fund, an annual contribution of $25,000 by the United States government, and another annual contribution of $15,000 for agricultural experiments, also by the United States government, will give the College an ample income to open its doors freely to the youth of the State, and to provide for additional class rooms and laboratories.

The New Physical Science Building.—The chief item in the foregoing table of appropriations provides for the erection of a new physical science laboratory. The building has already been planned and bids for its construction have been advertised for. The Board will probably let the contract at their Commencement session, and a few months later its stately walls will rise and overlook the valley of the Kaw. It is intended to finish the building and its equipment by the beginning of fall term, 1902. The

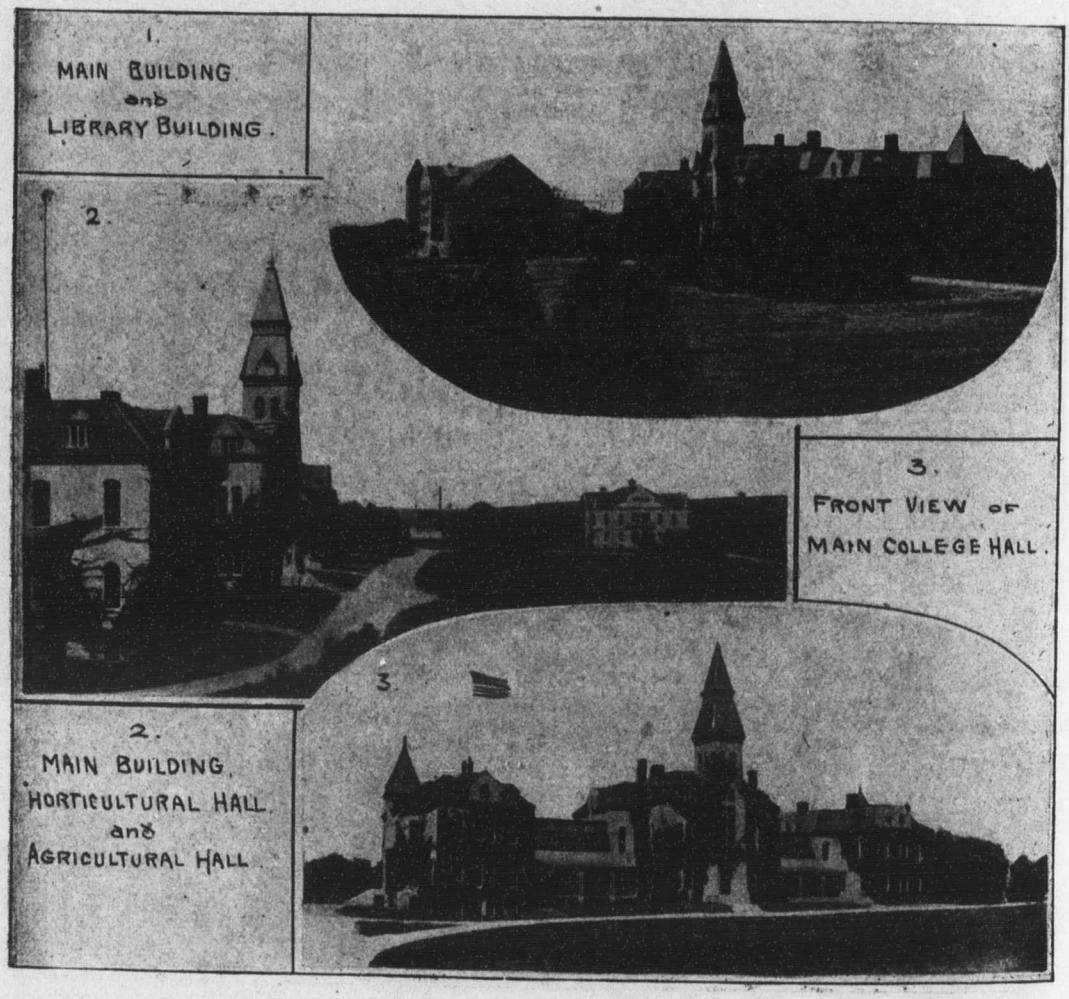
general form and appearance of the building may be judged from the accompanying zinc etching. It will be three stories high and measure about one hundred by one hundred sixty feet. The architectural treatment of its exterior will harmonizes with that of the other buildings. It will be located about midway between the Main College building and the new Agricultural Hall so as to form, with these and the new Library building, a grand court of



four stately structures situated in a large semicircle. Its main entrance will face south and be directly opposite the main entrance of Library Hall, so that students passing between these two buildings will not be required to walk through the crowded corridors of the Main building.

The new building will be equally divided between the Departments of Physics and Chemistry. The former will occupy the west wing and the latter the east wing. The main part of the floor space will be devoted to laboratory work. Each half will contain several large and well-lighted class rooms and offices, but the

extensive laboratories for both departments will be fitted up with all the modern improvements that can be procured with the appropriated amount. All will have extensive provisions for ventilation, water service, electric power and electric light. There will be an elevator for hoisting materials into the upper stories, dark rooms for photographic and photometric work, several lavatories, apparatus closets and storerooms. The basement floor of the



east wing will be fitted up for the chemical work of the Experiment Station.

The building will be heated by steam from the College powerhouse. Every room will have a combination of the direct and indirect radiation system, *i. e.*, it will have in addition to the usual radiators also a constant and easily regulated supply of fresh air heated by a pipe system in the basement and driven by an electric fan through spacious flues into the different parts of the building. The structure was planned by President Nichols and the professors of the two departments that will occupy it, and the working

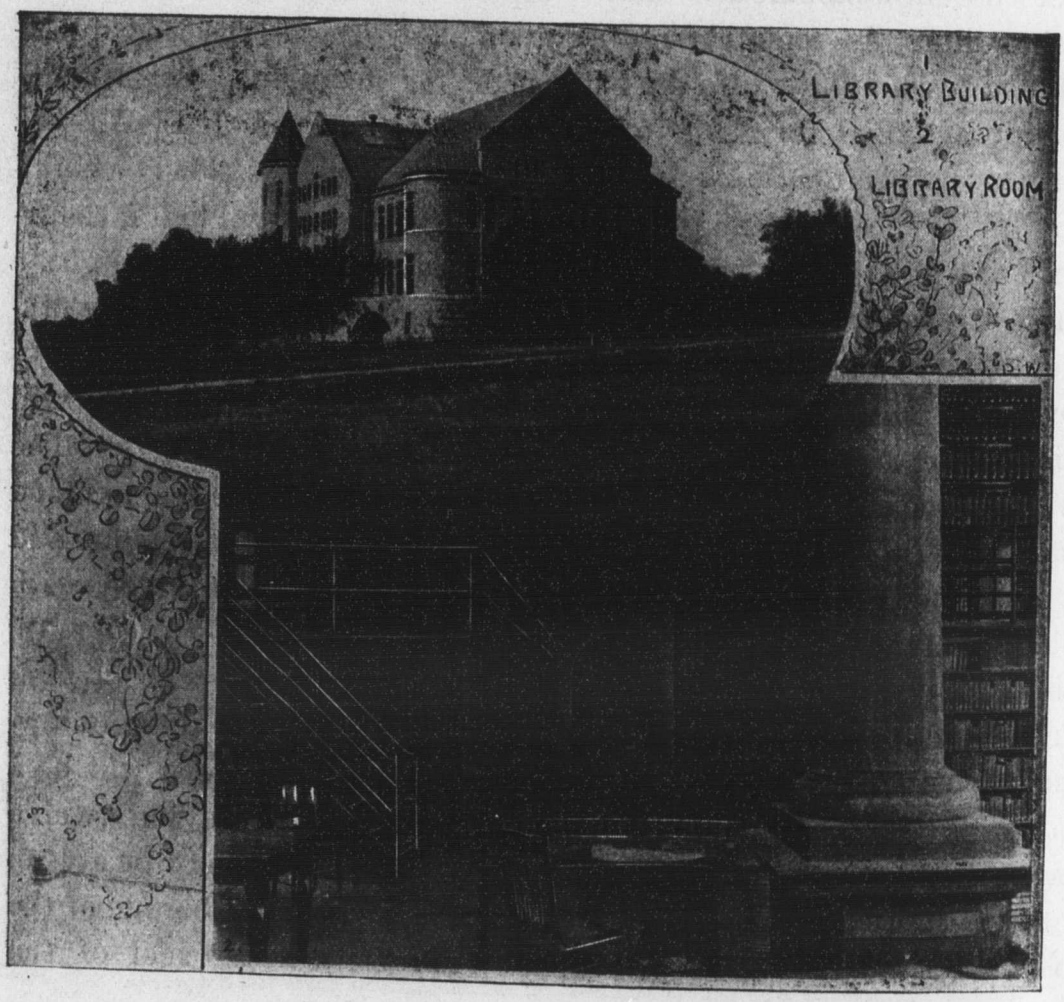
drawings and specifications were made by Architect J. G. Haskell, of Topeka, who has had considerable experience in building science laboratories.

The New Gymnasium for Girls.—The old chemical laboratory, built in 1876 and known to every old student as a large, flat, one-story structure, poorly lighted and ventilated and almost impossible of warming on cold winter days, burnt out a year ago just before Commencement. But while all the woodwork had become ashes the walls seemed to be as good as ever, and the Board concluded to rebuild it into a gymnasium for the girls. The legislature was asked for $5000 to reconstruct it. Prof. J. D. Walters prepared specifications, and to-day the structure is slowly assuming its new form. The plans provide for a large drill hall measuring forty-six by seventy two feet and twenty-six feet in height, a large dressing room, with lockers for about one hundred fifty students, an apparatus room, a lecture room measuring about thirty by thirty feet, two small offices, and a toilet room provided with eight shower baths, two tub baths and four water closets. The whole building will be furred, wainscoated and finished in moulded hard pine. The drill hall will have a paneled hard-pine ceiling and a deadened double floor. Every room will be provided with electric light and heated with steam. The drill hall will, in addition, have a heating chamber under its floor that will furnish fresh and pure warmed air in ample quantity. All the window-sashes will be glazed with Florentine glass and there will be a large skylight over the intersection of the roofs, having twelve large double-sash windows. While the building will not be able to pretend much exterior architectural beauty, it will be one of the best and most convenient structures of its kind west of the Mississippi.

The Addition to the Library Hall.—As our friends and visitors may know, the new Library Hall, built in 1893-94, was not completed. The original design included a large reading-room, a second floor over the library department to be occupied by one of the science departments, and a large art gallery. The last legislature appropriated $10,000 to add the reading-room and the second floor. The appropriation will not be available during the coming fiscal year, but it is expected to finish the addition by the first of September, 1902. The principal part of this extension will be located in the northwest angle of the present building and

will raise this to the same height of roof with the east part, making the building one of the handsomest and certainly one of the most solid, if not the most substantial and fire-proof college building in the State.

Farmers' Institute Work in 1900-01.—During the past year members of the College force have attended one hundred fifty-six farmers' institutes. The interest in these meetings has been

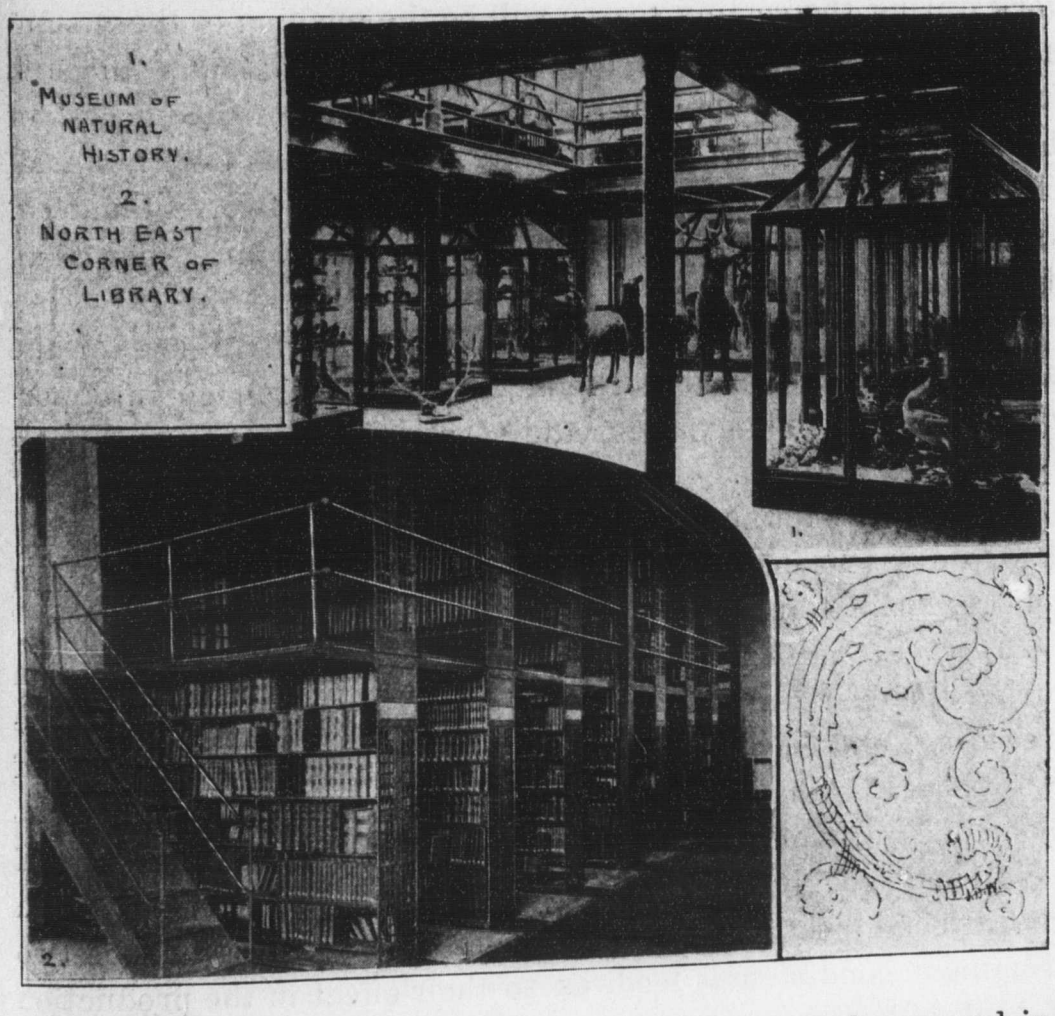


greater than ever before, and the total attendance at the one hundred fifty six institutes was 64,031 people. Three institutes had an attendance of five thousand each and eighteen had an attendance of one thousand and upward each.

No work of the College has shown more rapid strides in advancing than the farmers' institute work. In the fifteen years ending June 30, 1895, only one hundred thirty-seven farmers' institues were held, nineteen less than were held during the past year alone. In the year 1897-98, thirty farmers' institutes were held, in the next year sixty-three, the year following this one

hundred thirty-six, and during the present year one hundred fifty-six.

The increase in influence exerted by the farmers' institutes has been even more marked than the increase in attendance. During the years that the institutes were few in numbers, the attendance was small. This is true of institutes in a new territory now, but in the places where these meetings have been held annually for three



or more years, each year sees an increased attendance and increased interest with every person attending, and at each succeeding visit the College people find more farmers who have put in practice and found profitable the methods advocated by the College and Experiment Station.

For the fiscal year 1900-01, the College had $2000 appropriated for carrying on farmers' institutes. This furnished the money for holding the one hundred fifty-six meetings. We had applications for over one hundred institutes which we were obliged to decline because no money was available with which to hold them.

This indicates that during the coming year we shall probably have three times as many applications for institutes as we can accept, since only $2000 is available for this purpose the coming year. The new year begins July 1, and the earlier an application for an institute is received the better will be the chance of its being accepted.

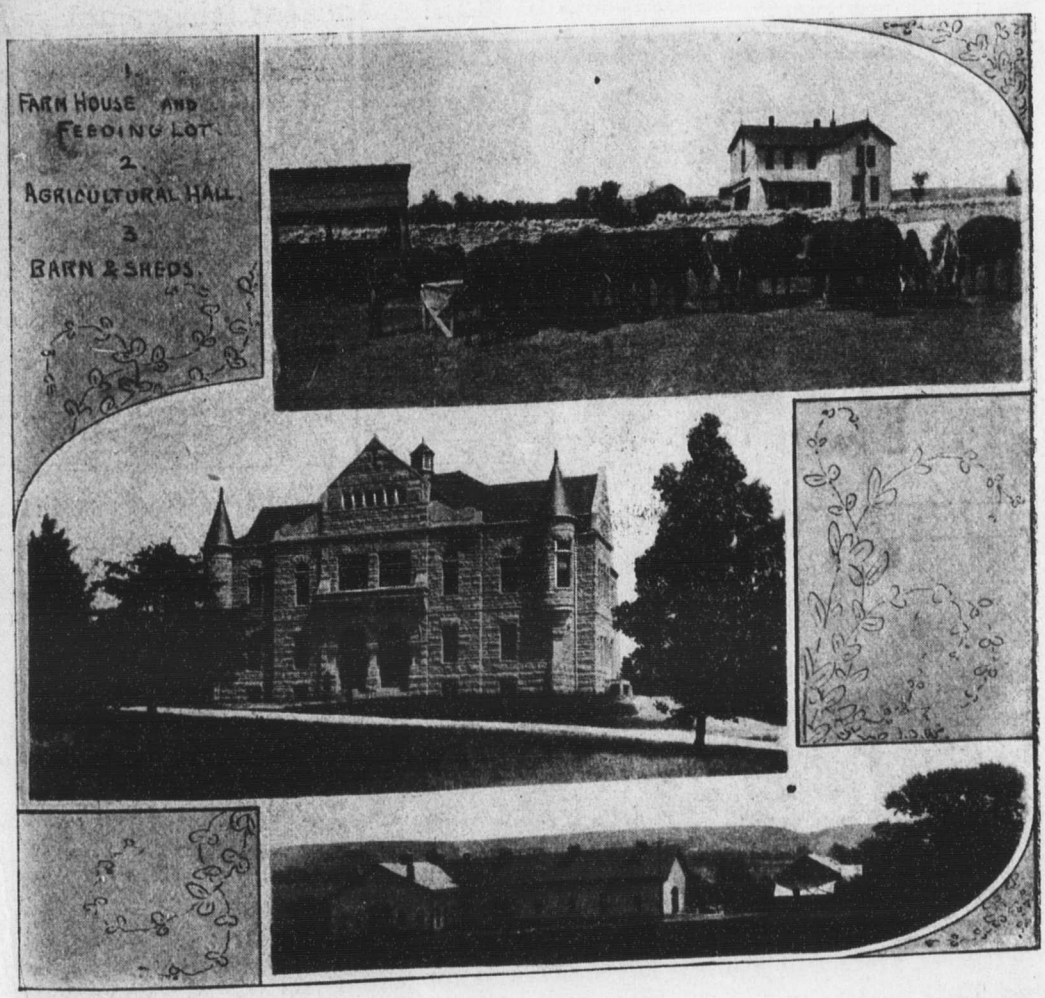
This year has demonstrated beyond a question the success of the summer picnic farmers' institute, and the chief feature of our work during the coming season will be the pushing of these summer institutes. We hope to hold at least fifty each month through July, August, and September. As an instance of the success of the summer institute, we may state that one was held in an adjoining county last July with an attendance of twelve hundred. An institute held at the same place the previous winter showed an attendance of only fifteen.

The summer institute serves as a welcome diversion for the farmers from hard field work and it gives the College an opportunity to use to full advantage the services of the Faculty during the summer vacation.

Applications for summer institutes should be sent before July 15. Address Farmers' Institute Department, State Agricultural College, Manhattan, Kan.

Experiment Station Work.—The work of the Experiment Station during the past year has been largely on the lines of that of the preceding, and has included experiments in the production of "baby beef"—that is, preparation of animals for slaughter at about one year of age; calf raising by various modifications of their feed; feeding a scrub herd of dairy cows especially for a comparison of various kinds of leguminous forage; tests of two prominent condimental feeds as to their effect in the production of beef and milk; experiments in the improvement of black-leg vaccine; tests of the efficacy of "Detmer's virus" in protective inoculation against swine plague; studies of the tetanus bacillus as to cultural features and the effects of disinfectants; digestion experiments; field experiments on a large scale with soy beans, especially with reference to soil inoculation; cow peas for hay; thickening the stand of alfalfa, especially the influence of disking after each cutting; variety tests of a large number of grasses and forage plants on a small scale; propagation of some of the native grasses from seed; wheat breeding by cross-fertilization; corn

breeding with a view to increasing the nitrogen-content; study of the relation between specific gravity and nitrogen-content of corn; testing of sugar beets grown by farmers of the State; study of native plums and plum breeding by selection and cross-fertilization; enlargement of the variety test of apples; study of certain prevalent diseases of orchard and nursery trees, especially the crown gall, the relation of apple rust to red cedar, defoliating

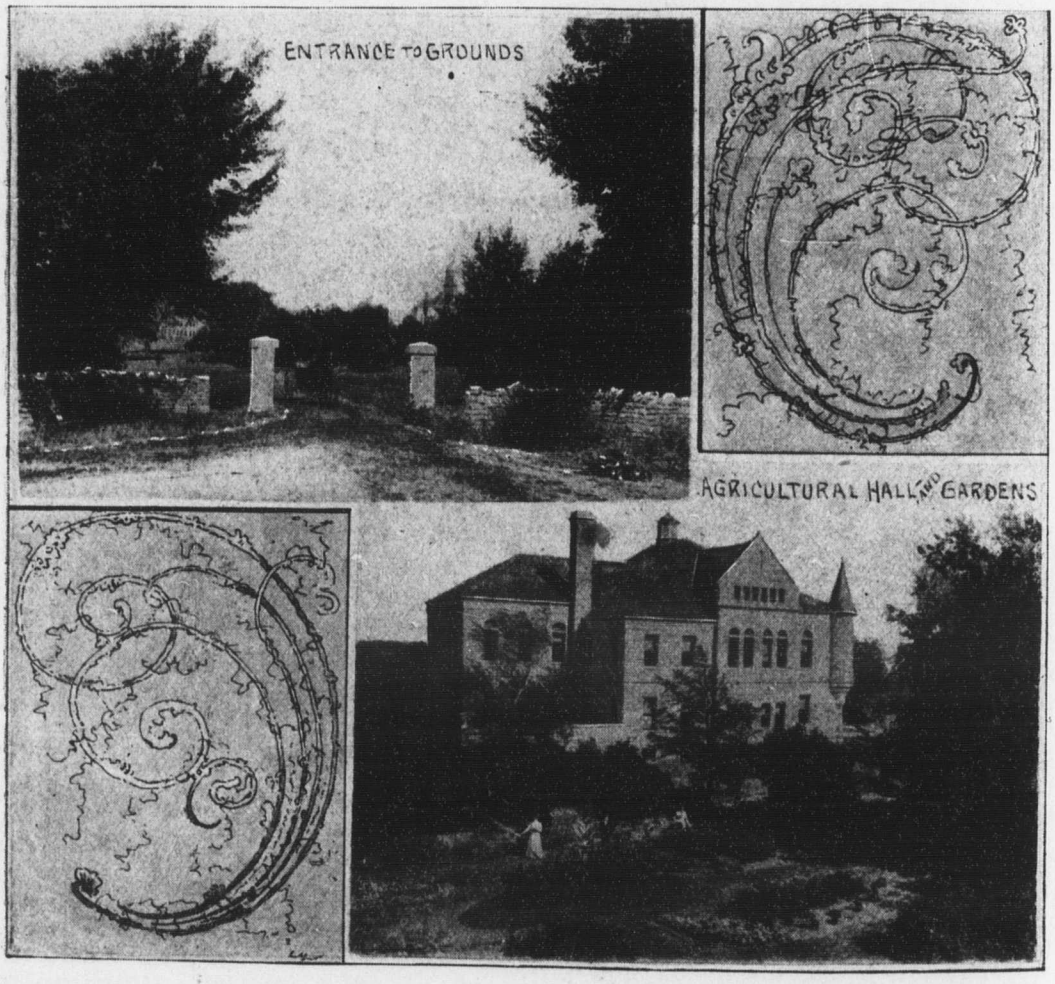


fungi of the plum and cherry, and leaf curl of the peach; elaboration of the results of many years' observations upon the trees and shrubs available for lawn and park decoration; studies of plum insects, the apple worm, the canker worm, and other orchard pests; study of aphids, especially those of the garden vegetables, and the wheat louse; a review of the entire hemipterous fauna of the State.

In co-operation with the Bureau of Plant Industry, the Station has inaugurated a series of experiments with grasses and forage plants in Harper county, a region of limited rainfall, and also in

pasture and range grass improvement. Negotiations are under way for co-operative experiments with the Bureau in the origination and testing varieties of wheat. (This will doubtless be concluded before June 30, 1901.)

The number of bulletins issued by the Station will be less than the average, partly because of delay at the office of the State printer and partly because of consolidation of subjects. By this



consolidation, while the number is reduced, the total amount of matter printed will be about the same. The following is the list of bulletins issued or in press:

No. 99, Press Bulletins Numbers 35 to 70, all departments.
No. 100, Soy Beans in Kansas in 1900, Farm Department.
No. 101, Notes from the Plum Orchard, Horticultural Department.
No. 102, Forage Plants for Kansas, Botanical Department.
No. 103, Digestion Experiments on Kansas Feeds; Sugar Beets, 1891-1900, Chemical Department.

Of the above bulletins twenty-five thousand copies each have been printed, the mailing list now including about twenty-three

thousand names. The bulletins are sent free to all applicants.

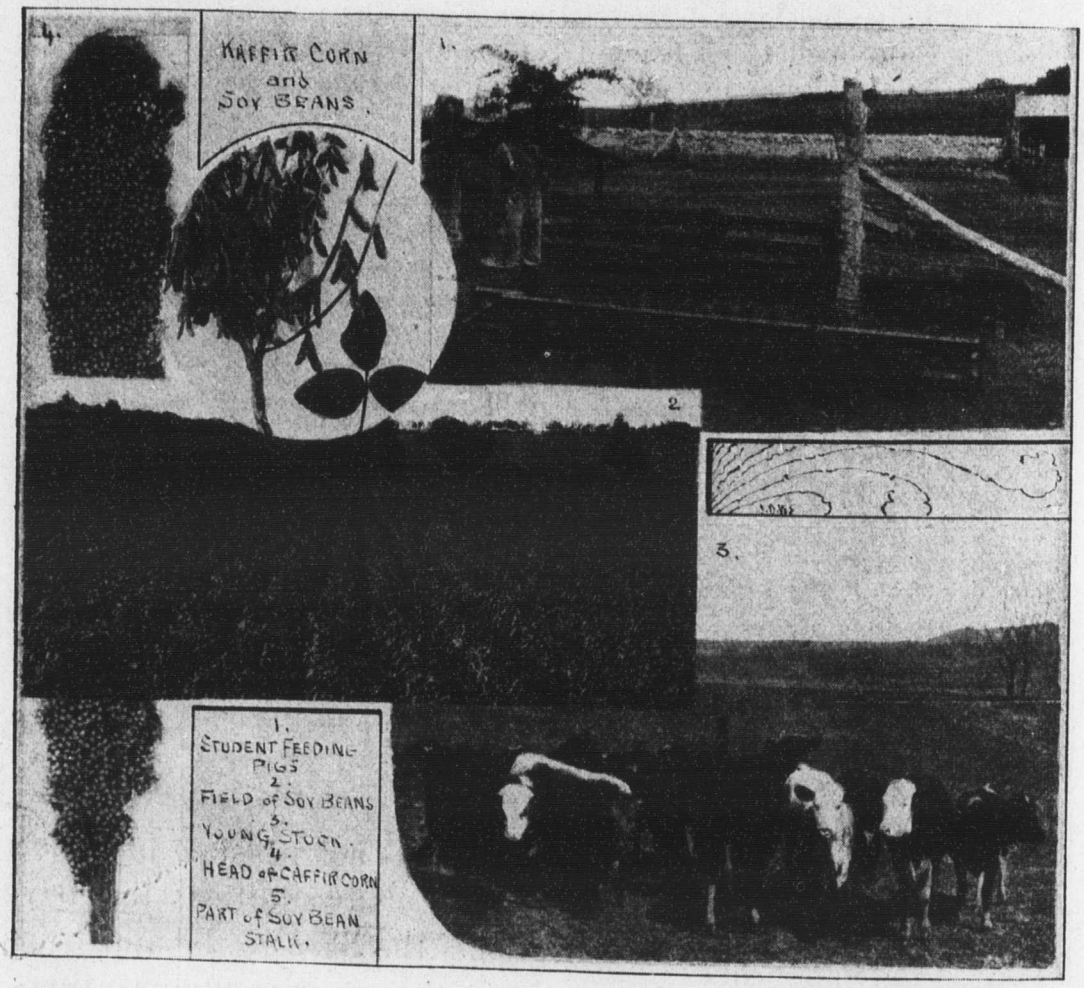
The issue of Press Bulletins has been continued to a considerable extent through the year. These, as heretofore, are sent to the newspapers of the State, to certain State and county officers, and to certain public places where they are brought to the attention of the farmers of the State. They are not for general distribution, though a few of them have been sent to the entire mailing list for special reasons. A list of them follows:

No. 71, Experience in Soiling and Pasturing Cows, 1899, Farm Department.
No. 72, Fattening Steers without Hogs, Farm Department.
No. 73, Cultivated Blue Grasses, Botanical Department.
No. 74, Some Interesting Climbers for the Veranda, Horticultural Department.
No. 75, The Races of Corn, Botanical Department.
No. 76, Sugar Beets in Kansas, 1900, Chemical Department.
No. 77, Honeysuckles at the Kansas Station, Horticultural Department.
No. 78, Johnson Grass, Botanical Department.
No. 79, Digestion Experiment with Buffalo Grass Hay, Chemical Department.
No. 80, Notes on Plums, Horticultural Department.
No. 81, Soy Beans in Kansas in 1900, Farm Department.
No. 82, Disking Alfalfa, Farm Department.
No. 83, Clovers, Botanical Department
No. 84, Tests of Soy Beans by Kansas Farmers in 1900, Farm Department.
No. 85, Roots for Kansas Farmers, Farm Department.
No. 86, Kafir-corn *vs.* Good Butter, Farm Department.
No. 87, When to Cut Alfalfa. Farm Department.
No. 88, Condimental Stock Foods for Dairy Cows, Farm Department.
No. 89, Shelled Corn Compared with Corn Chop for Young Calves, Farm Department.
No. 90, Dried Blood as a Tonic for Young Calves, Farm Department.

A Year of Hard Work Well Done.—It is not possible in a short sketch like this to speak in detail of the many additions that have been made to the museum collections, the library, the apparatus cabinets of the different departments, the experimental plantings, the herd, and the agricultural and horticultural implements. Nor can we enter the class rooms and discuss the work of the many professors and instructors. A few of these subjects are mentioned separately in this number of the INDUSTRIALIST, but a majority have to be entirely overlooked. The Faculty have worked hard—we feel like saying they have worked heroically. An increase in the enrolment of over two hundred students means a very great increase of work; it means the formation of eight or

ten additional classes; it means more work in the committee rooms and the executive chair; more furniture, more books, more apparatus, more of everything that enters into the almost endless inventory of a modern technical school. In addition to all this may be mentioned that during the year several highly efficient department heads resigned their chairs to accept better salaries in eastern colleges. All of this has made the year now drawing to a close a busy one—a year of hard work well done.

J. D. WALTERS.



We are in receipt of the Fourth Annual Report on the Agricultural Investigations in Alaska, by C. C. Georgeson, special agent in charge of this work and formerly professor of agriculture at this College. The report is a very interesting pamphlet of eighty-three pages, illustrated by twenty-four full-page half-tones. It has been issued as Bulletin No. 94, of the United States Department of Agriculture, and may be had free by sending to that department, Washington, D. C.

GENERAL INFORMATION.

EXAMINATIONS for admission are held at the beginning of each term, as shown in the calendar of the college year. Applicants at other times during the school year have special examinations. These examinations are chiefly written, and a grade of seventy per cent, at least, must be obtained to pass a study.

Examinations in the courses are held twice each term, as announced in the calendar. The results of these examinations, marked on the scale of 100, are combined with the grades of the preceding daily exercises into a grade for the period. Grades reported to the Secretary for record are made up by giving the mid-term record a value of one-third and the record for the last half of the term a value of two-thirds. For passing a study, the mean grade so calculated, and also the grade for the last half of the term, must be at least seventy. Any student receiving less than a passing grade on two or more studies may either drop back or withdraw from the College. Any student may receive a certificate of standing upon leaving College at the close of a term.

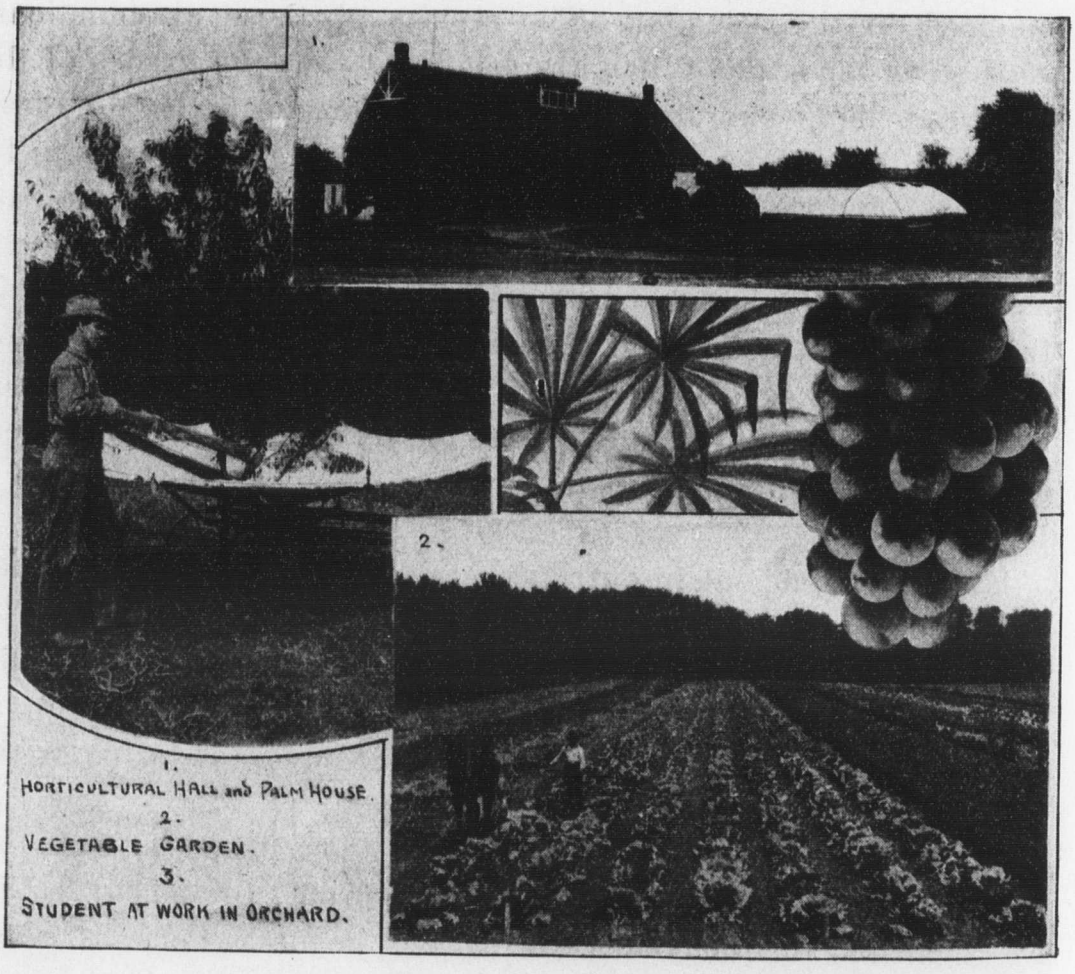
Students deficient in entrance studies must make good such deficiencies before entering on the work of the second year. Students are not catalogued in the third-year class unless all deficiencies of the preceding years are provided for. Candidates for graduation must make good all deficiencies before entering on the work of the spring term of the fourth year.

After entering College, students are allowed special examinations only upon recommendation of the professor in charge, and by permission of the committee on assignments. Permission for examinations in studies not pursued with a class must be obtained at least two months before the examination is held. All such examinations are held under the immediate supervision of the professor in charge, and are thorough and exhaustive. Students desiring credit for work done elsewhere must bring certificates and catalogues to show that the work done is equivalent to ours.

Terms of Admission.—Persons over fourteen years of age will be admitted in any of the following ways: (1) Kansas teacher's certificate, provided no subject is below seventy per cent. (2) Diploma received on completion of a county course of study which has been approved by the Faculty. (3) Certificate of passing the

grammar grade or diploma from the high school of any city or county with a course of study approved by the Faculty. (4) Pass a satisfactory examination in reading, spelling, writing, geography, arithmetic, United States history, English grammar, and physiology.

Persons over eighteen years of age will be admitted to the preparatory classes if unable to pass the common-school branches.



Full admission to the first year, in addition to the common-school branches—reading, spelling, writing, geography, arithmetic, United States history, English grammar, and physiology—requires bookkeeping, English composition, and algebra through simple equations of one unknown quantity. It is quite possible for a good student who enters somewhat behind to make up his deficiency in a year or two and graduate in four years.

All the preparatory studies are taught each term; and all of the first-year studies except botany, which is not taught during the winter term, and nearly all of the second-year subjects are taught

each term; so that a person may enter at the beginning of any term and find work suited to his advancement.

Examinations for admission are held at the beginning of each term. Applicants at other times during the school year have special examinations. These examinations are chiefly written, and a grade of seventy per cent, at least, must be obtained to pass a study. On entrance, applications for advanced standing in the courses or for credit for certain studies of the courses may be made to the chairman of the committee on examinations. After entrance, such applications should be made to the professor in charge of the study. In any case the applicant will be required to pass such an examination as the professor in charge deems necessary.

The courses of the following cities and counties have been approved by the Faculty, and others may be submitted at any time:

CITIES.

Abilene.
Alma.
Anthony.
Argentine.
Arkansas City.
Ashland.
Atchison.
Augusta.
Baldwin.
Belleville.
Beloit.
Burlingame.
Burlington.
Caldwell.
Chanute.
Cherryvale.
Chetopa.
Clay Center.
Clifton.
Coffeyville.
Columbus.
Concordia.
Council Grove.
Dexter.
Dodge City.
El Dorado.
Ellsworth.
Emporia.
Eureka.
Fort Scott.
Fredonia.
Garden City.
Garnett.
Gaylord.
Girard.
Great Bend.
Hiawatha.
Holton.
Horton.
Humboldt.
Hutchinson.
Independence.
Iola.
Junction City.
Kanapolis.
Kansas City.
Kingman.
La Cygne.
Larned.
Lawrence.
Leavenworth.
Lebo.
Lincoln.
Lyons.
Manhattan.
Mankato.
Marion.
Marysville.
McPherson.
Minneapolis.
Neodesha.
Newton.
Olathe.
Osage City.
Osborne.
Oswego.
Ottawa.
Paola.
Parsons.
Pittsburg.
Pomona.
Pratt.
Russell.
Salina.
Scranton.
Sedan.
Seneca.
Solomon City.
St. Mary's.
Topeka.
Valley Falls.
Wamego.
Washington.
Waverly.
Wellington.
Wellsville.
Winfield.
Wichita.

COUNTIES.

Allen.
Barber.
Bourbon.
Chautauqua.
Cheyenne.
Clay.
Cloud.
Coffey.
Comanche.
Cowley.
Decatur.
Douglas.
Elk.
Ellis.
Ellsworth.
Franklin.
Geary.
Gove.
Greely.
Harper.
Harvey.
Jefferson.
Jewell.
Johnson.
Kingman.
Labette.
Lane.
Lincoln.
Logan.
Marion.
Miami.
Mitchell.
Morris.
Nemaha.
Norton.
Ottawa.
Phillips.
Pottawatomie.
Pratt.
Reno.
Republic.
Rice.
Riley.
Rooks.
Rush.
Russell.
Scott.
Shawnee.
Sherman.
Smith.
Thomas.
Trego.
Wabaunsee.
Wallace.
Washington.
Wilson.
Woodsou.
Wyandotte.

COUNTY HIGH SCHOOLS.

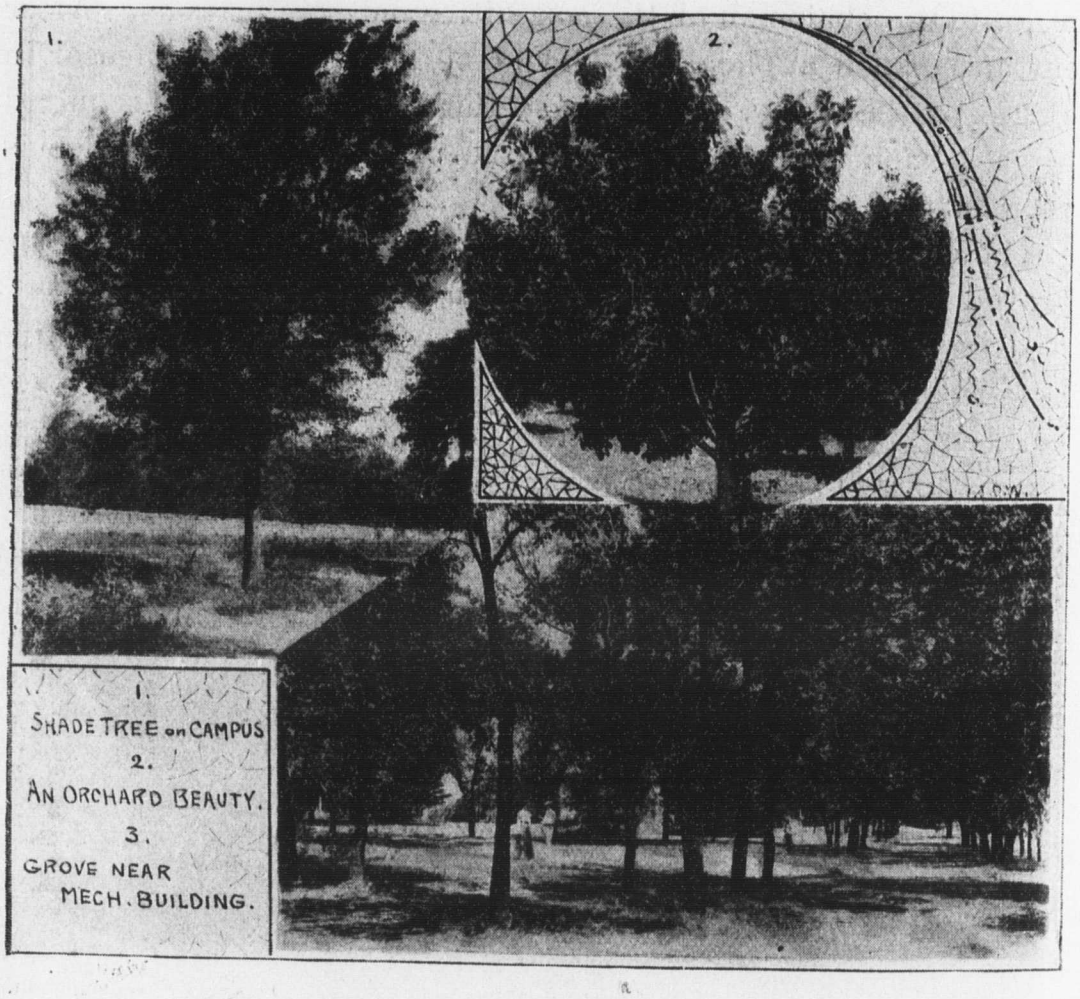
Atchison and Dickinson.

Counties and cities on the accredited list may be called upon at any time to furnish evidence that they are maintaining a satisfactory standard of scholarship.

The studies of the first year, and many of the second, are taught in two or all of the terms of the year, and not simply in the terms shown in the schedule, so that students who enter deficient

in a term's work on entrance studies will go right on with first-year work the next term. It is quite possible for a good student who enters somewhat behind to make up his deficiency in the course of a year or two and graduate in four years.

Students should make every effort to enter on the first day of the term. Those entering later will be at a serious disadvantage, and if more than two or three weeks late should expect to take re-

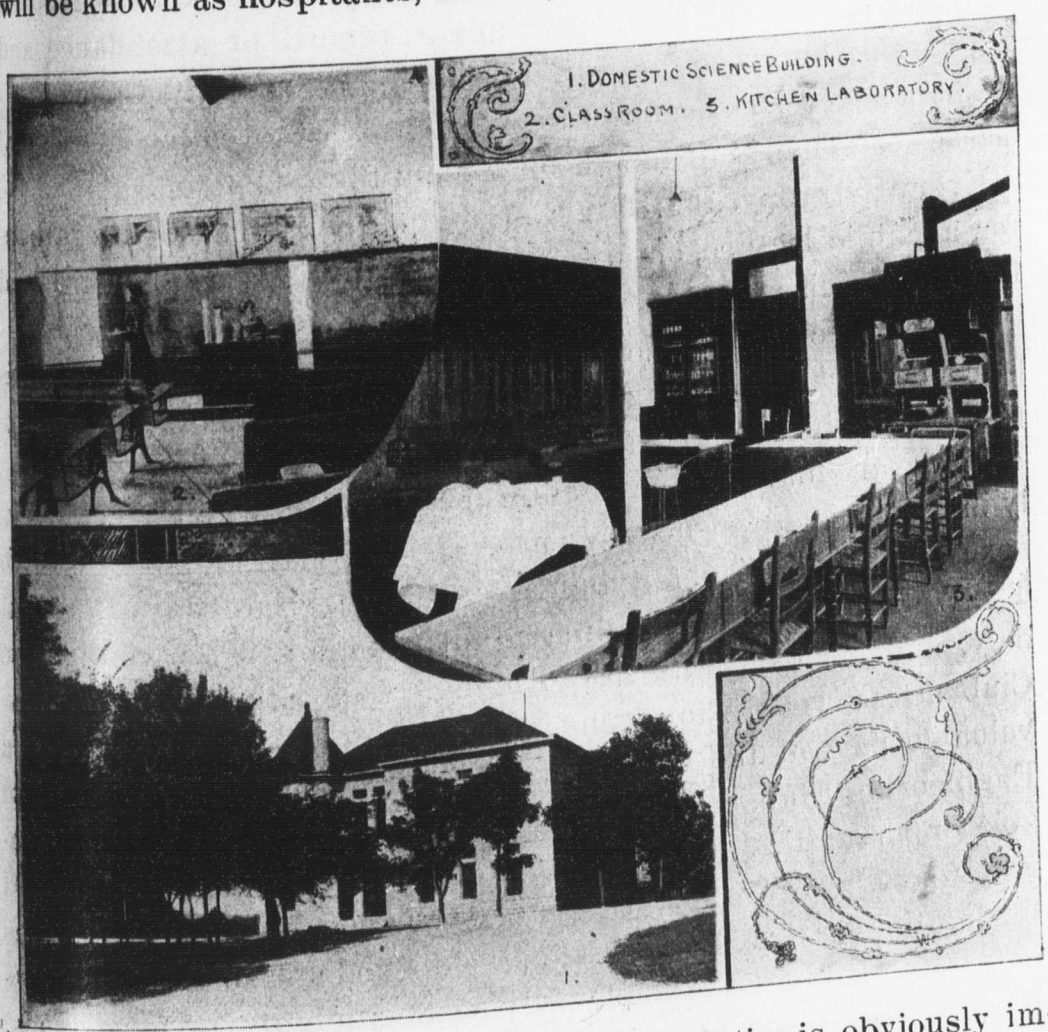


view work or fewer studies. If unable to enter before mid-term it will be better to wait until the next term.

The fall term of 1901–02 will open on Thursday, September 19, and the examinations for admission will be held on Wednesday, September 18, at 9 A. M.

Hospitants.—That mature persons not able to attend College continuously may nevertheless be able to enjoy, in a measure, the privileges of the institution, an invitation has been extended to all citizens of Kansas who may be so disposed to visit the College, its lectures, laboratories, library, shops, and various departments,

and to avail themselves as fully of its advantages as may be consistent with their wishes, with the needs and duties of the regular students, and with the harmonious and successful working of the institution. Following are certain rules concerning hospitants: Persons regularly attending any classes of the Kansas State Agricultral College, without assuming the regular duties of students, will be known as hospitants, and —(1) Must be persons of mature



age, whose attendance on regular College duties is obviously impracticable. (2) Must be properly enrolled at the President's office. (3) May attend any of the regular classes of the institution, subject to the same regulations, with regard to punctuality and attendance, as are imposed upon regular students, except as to recitations and examinations. (4) May use the library as regular students. (5) Are not entitled to laboratory privileges without special recommendation of the professor in charge and the permission of the Faculty.

General Duties and Privileges.—General good conduct, such as becomes men and women anywhere, is expected of all. Every

student is encouraged in the formation of sound character, by both precept and example, and expected, "upon honor," to maintain a good repute. Failure to do so is met with prompt dismissal. No other rules of personal conduct are announced.

Classes are in session every week-day except Monday, and no student may be absent without excuse. Students cannot honorably leave the College before the close of a term, unless excused beforehand. A full and permanent record of attendance and scholarship shows to each student his standing in the College.

Chapel exercises occupy fifteen minutes before the meeting of classes each morning and absence from them is noted.

Every Saturday, at 1:30 P. M., the whole body of students gathers for a public lecture, or for rhetorical exercises of the third- and fourth-year classes.

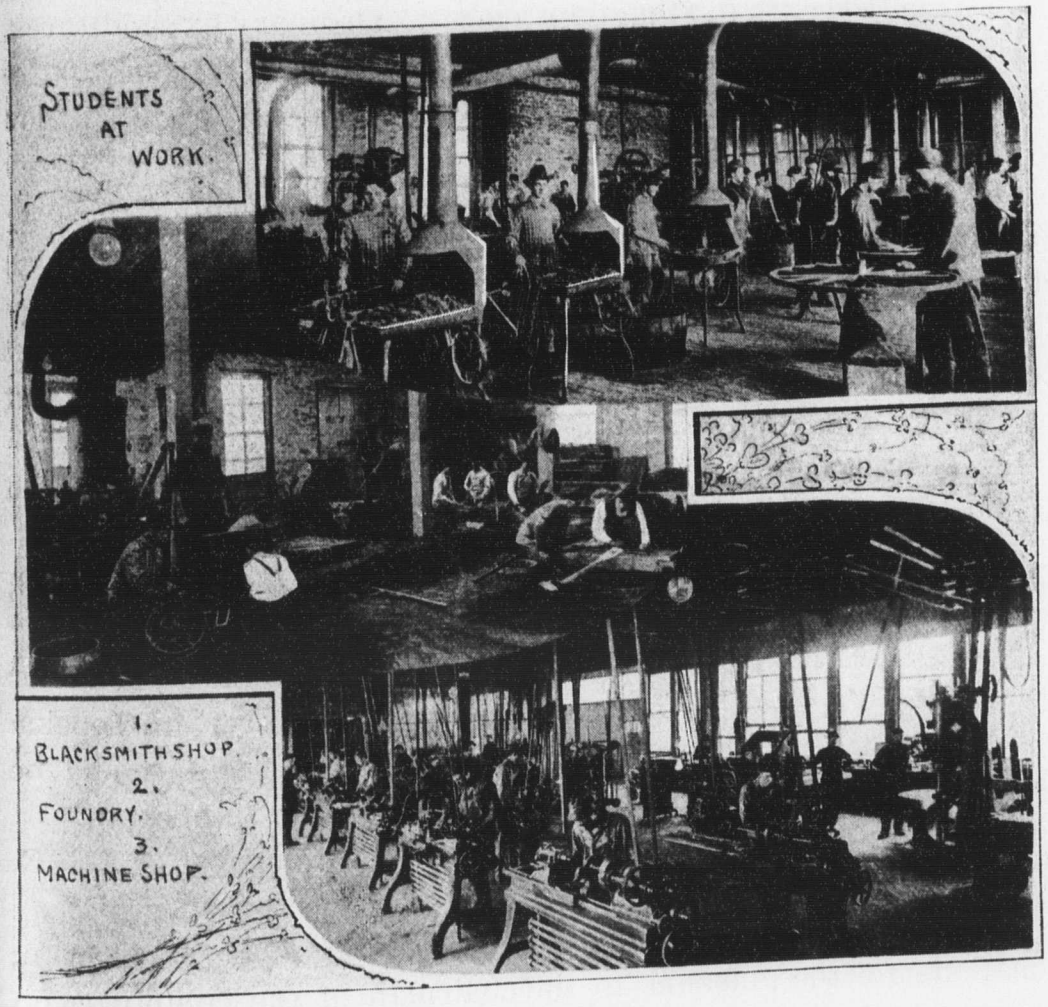
Systematic training in gymnastic and calisthenic exercises is provided for both young men and women, under teachers appointed by the College.

There are four prosperous literary societies, which meet weekly in rooms set apart for their use. The Alpha Beta, open to both sexes, and the Ionian, for young women, meet Saturday afternoon. The Webster and the Hamilton admit to membership young men only, and meet on Saturday evening. The Students' Farmers' Club meets weekly to discuss farm questions, and furnishes a valuable part of the education offered. A Science Club, and an Engineering Club, conducted largely by the students, afford valuable opportunities for the preparation of original articles and reviews of progress in the arts and sciences. At various times during the year the College halls are opened for social or literary entertainments for the whole body of the students, or for classes. For the last three years the students have organized and presented courses of entertainments, which have been of high value, and of a moderate expense to each individual.

Earning One's Way.—The courses of study are based upon the supposition that the student is here for study, and a proper grasp of the subjects cannot be obtained by the average student unless the greater part of his time is given to College duties. Students in straightened circumstances are encouraged and aided in every way possible, but unless exceptionally strong, both mentally and physically, are advised to take lighter work by extending the course, if obliged to give any considerable time to self-support.

As a rule, students should be provided with means for at least a term, as some time is necessary for one to make acquaintances and learn where work adapted to him may be had. Sometimes arrangements may be made in advance.

The lines in which employment may be had are various. The College itself employs student labor to the extent of about $900 per month, the rate paid being ten cents per hour. This work is



on the farm, in the orchards and gardens, in the shops and printing-office, for the janitor, etc. As one's ability and trustworthiness become established, more responsible and more remunerative work may be had, to a limited extent. Many students obtain employment in the town; some work for their board in families in town or in the country near the College. Labor is everywhere respected, and the student who earns his way is honored by all. He will necessarily have little time for the lighter pleasures that may be made incident to college life.

Expenses.—Tuition is free to all, irrespective of residence in

Kansas; and no fee for incidental or contingent expenses is charged. Board and washing are not furnished by the College. Board, with furnished room, can be procured in private families at from $2.50 to $3.50 per week, or table board in student clubs from $1.50 to $2.25 per week. Furnished rooms, without board, can be obtained at from $3.50 to $5 per month. Some students board themselves at even less cost, and rooms for the purpose can be obtained at a rent of from $1 to $3.50 a month. Washing costs from 50 cents to $1 a dozen pieces. Ordinary expenditures, aside from clothing and traveling expenses, range from $100 to $200 a year. No institution in the State furnishes an education at less cost to the student.

Business Directions.—General information concerning the College and its work, studies, examinations, grades, boarding places, etc., may be obtained from the President or the Secretary.

Questions, scientific or practical, concerning the different departments of study or work, may be addressed to the several professors and superintendents.

Loans upon school-district bonds are to be obtained from the Loan Commisioner.

Bills against the College should be presented monthly, and, when audited, are paid from the office of the Treasurer.

All payment of principal and interest on account of bonds or land contracts must be made to the State treasurer, at Topeka. Applications for extension of time on land contracts should be sent to the Secretary of the Board of Regents, at Manhattan.

The INDUSTRIALIST may be addressed through Pres. E. R. Nichols, managing editor.

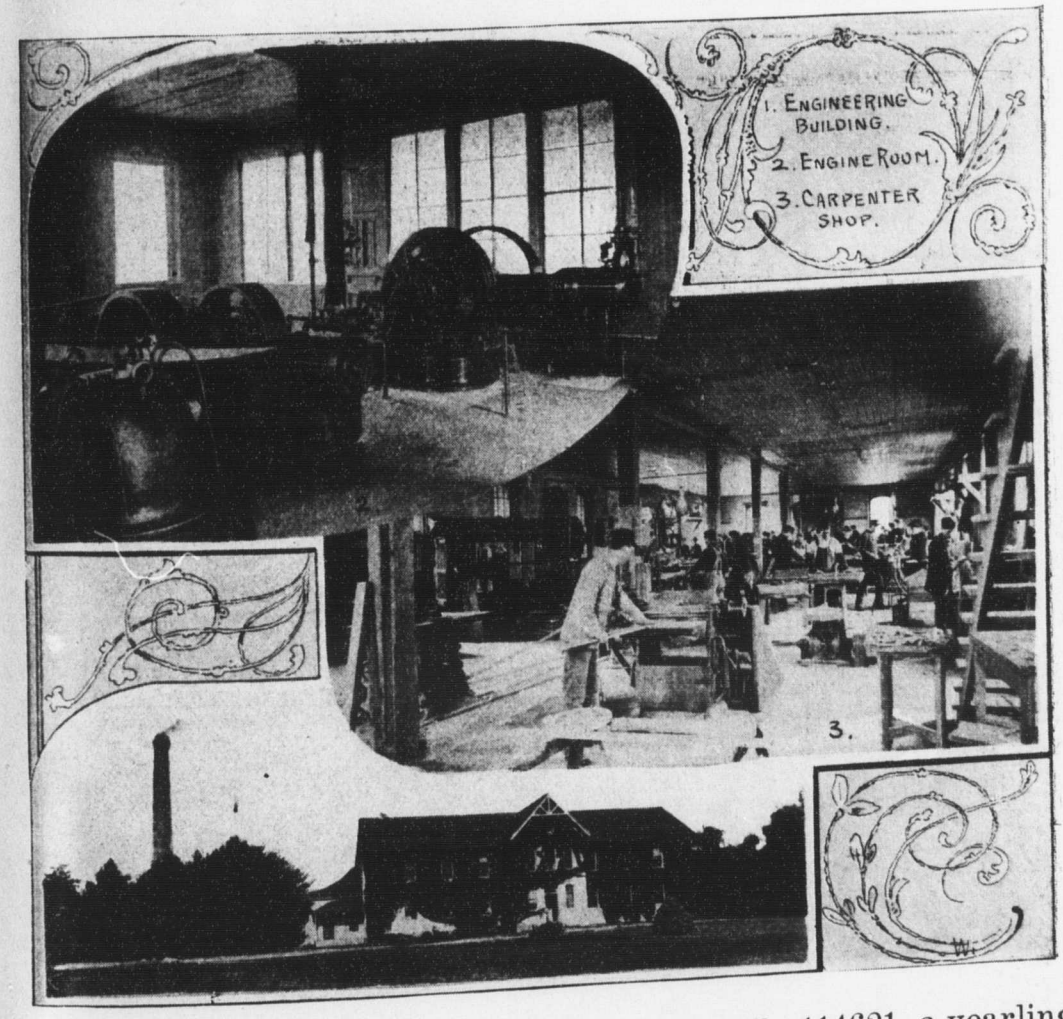
Donations for the library should be sent to the Librarian; donations for the museum, to the chairman of the committee on museums.

Applications for farmers' institutes should be made as early in the season as possible, addressing Institute Department, Kansas State Agricultural College.

Applications for the publications of the Experiment Station, and general inquiries concerning its work, should be addressed Agricultural Experiment Station; but correspondence concerning special lines of investigation should be sent to the member of the Council in charge of such work.

COLLEGE CATTLE.

AT COMMENCEMENT, 1900, the College did not own a single pure-bred animal. We now have pure-bred animals representing five breeds of cattle and three breeds of hogs. The Hereford, Aberdeen-Angus and Red Polled animals have been donated by generous Kansas breeders, as have also the model pure-bred Poland-China, Berkshire and Duroc-Jersey hogs.

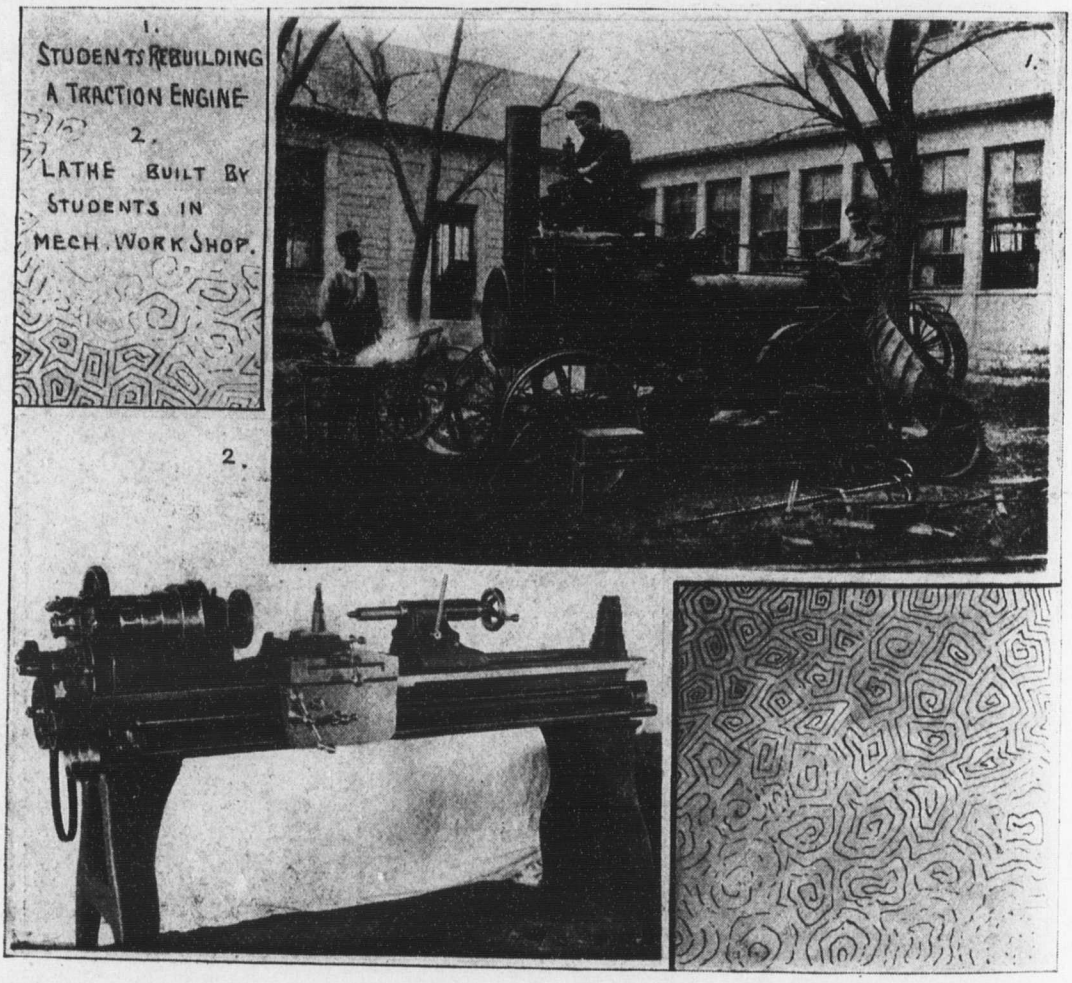


The College owns three Herefords. Excello 114621, a yearling bull, was donated by J. M. Foster & Co., Topeka. Perfection Maid 116691, a two-year-old heifer, was donated by Steele Bros., Belvoir, Kan. She sold at Kansas City for $500 and is a nearly perfect Hereford. Agastha, a yearling heifer, was donated by Geo. W. West & Son, Silver Lake, Kan., and was the best calf in their herd.

W. O. Park, Atchison, Kan., donated to the College the two-year-old Aberdeen-Angus bull, Axtell of Osborne 38360. This bull belongs to the great Queen Mother family, and Mr. Park refused $1000 for his sire.

Charles Morrison, Phillipsburg, Kan., donated to the College a pure-bred Red Polled heifer. She comes from a heavy strain of the breed, her sire weighing 2040 pounds in light flesh.

The College purchased from the Minnesota College of Agriculture the bull Golden Champion, a pure-bred Short-horn, the equal of any blooded beef animal in the State. He is valued at $1000 and has proved himself to be as great a sire as he is an in-



dividual. T. K. Tomson & Son, Dover, Kan., sold the College the two-year-old Short-horn heifer, Mary of Elder Lawn. She is sired by Gallant Knight, who won with his get fourteen prizes at the National Short-horn Show, Kansas City. This heifer comes from an unusually prolific strain of Short-horns, her grand dam, fourteen years old, is now suckling her thirteenth calf. The College also purchased from T. P. Babst, Dover, Kan., the two-year-old Short-horn heifer, Easter Lily. This heifer is the choice animal out of one hundred head of pure-bred Short-horns and brings to the College the blood of many noted show animals.

The College purchased from Charles Solveson, Nashotah, Wis., the pure-bred Guernsey bull, Shylock of Darlington. His dam gave five hundred pounds of butter in six months—the average Kansas cow gives seventy pounds a year. Mr. Solveson's herd is one of the most noted Guernsey herds in America, two of his cows selling for $4700 this spring.

W. P. Goode, Lenexa; Kirkpatrick & Son, Wolcott; Hiram Smith,

Colwich; A. M. Jordan, Alma; G. W. Kelly, Abilene; Charles Morrison, Phillipsburg; John D. Marshall, Walton, and George H. Barth, Iola, have each donated to the College a pure-bred Poland-China. C. A. Stannard, Emporia, has donated a Berkshire, and A. D. & H. L. Perrin, Prescott, have donated a Duroc-Jersey. In each case the breeder donated what he considered an ideal animal, and this will enable our students to study the forms desired by these successful men.

The Legislature appropriated $5000 for the purchase of pure-bred cattle. It is planned with this money to add during the summer to the College herd such animals as will be needed to

furnish at least a trio of the pure-bred animals of the following breeds: Aberdeen-Angus, Galloway, Hereford, Short-horn, Ayrshire, Guernsey, Holstein, Jersey, Red Polled and Polled Durham. We plan to secure in each breed typical animals of such a character that whatever breed a student may select as being adapted to his own farm, he may safely take the animals of this breed that are owned by the College as models of what he should select and breed.

Six breeders have donated pure-bred cattle outright. In every breed, other breeders who have not felt able to do this have quoted us greatly reduced prices, usually offering to sell to the College at half what an animal is worth. As a result of this generosity, we will be able to show our students next fall at least $10,000 worth of pure-bred stock from a $5000 appropriation.

In maintaining the College herd, we plan to keep a few pure bred animals of each of the principal breeds, selecting each animal as typical of the breed to which it belongs, that it may be used as a model by our students of what they should breed towards. A fair sized herd of scrub cows will be maintained to be used in grading up with our pure-bred bulls to show the improvement to be made by breeding ordinary cattle to sires of the highest quality.

The three herds—the pure-bred, the graded and the scrub—will be handled alike and developed on Kansas-grown feeds. This will teach our students how to make the most money with whatever class of cattle they may have, using feeds grown on their own farms.

H. M. COTTRELL.

The thirty-eighth annual catalogue of the officers, students and graduates of the College, *i. e.*, the catalogue for the present school year, has been received from the printer and is being mailed as Number 37 of the INDUSTRIALIST. The document is a pamphlet of one hundred thirty-six pages, neatly illustrated and full of information concerning courses of study, resources and objects, grounds and buildings, and duties and privileges. It will be sent to all State officers, county superintendents, school principals and newspaper editors in the State; every student will receive a copy at the Secretary's office, and every one whose name appears on the list of students as given in the catalogue will receive a copy free by mail. It will also be mailed free to any one applying for it. Send for a copy.

A QUARTER OF A CENTURY WITH THE AGRICULTURAL COLLEGE

THE commencement of 1901 will be a silver jubilee for the senior member of the Faculty of this College; it will be the twenty-fifth commencement which Professor J. D. Walters celebrates as the head of the Department of Industrial Art. The professor entered upon his work here with the winter term of 1876-77, *i. e.*, soon after the reorganization of the College from a classical to an industrial school, and has been at his post ever since. He has seen the Agricultural College grow from an obscure frontier institution, with scarcely two hundred students, a single course of study, half a dozen professors, a building or two, a board-roofed barn, and hardly a beginning of a library, to a magnificent center of learning, known in all states and all countries, the largest school of its kind in the world. He has seen the single course of study develop into nine different courses, the chairs of instruction multiply, the buildings expand and the means accumulate. He has witnessed how, by energetic and persistent efforts on the part of the Faculty and the Board, the College gradually became the pride of all Kansas and its most characteristic institution. He has seen, too, how at times political intrigues and selfishness threatened the usefulness of the school to which he has devoted his energies. He has seen legislatures misunderstand its possibilities and misjudge its needs; but during all these ups and downs he has hopefully clung to his ideal—the upbuilding of the College. During these years which Professor Walters has given to the College he has instructed nearly 8,000 students and has taught over 12,000 individual terms. He has never asked for a leave of absence or a vacation; he has never missed a whole day of his work on account of private business, and has never been seriously unwell. At the beginning of the winter term of 1885 he started his work one day late on account of a light case of bronchitis which he contracted on a snow-bound train near Chicago, where he had gone to make purchases for the College. A year later he poisoned himself with ivy and lost a part of a day; but these two are all of his absences on account of sickness. There are but two educators in the State who have held their chairs for longer periods—Chancellor Snow and Professor Miller of the State University. The INDUSTRIALIST wishes these veteran workers in the educational vineyard of Kansas another happy twenty-five years of effective labor.

THE INDUSTRIALIST.

Published weekly during the College year by the Printing Department of the

Kansas State Agricultural College.
Manhattan, Kansas.

PRES. E. R. NICHOLS.....Editor-in-Chief
PROF. J. D. WALTERS.....Local Editor
PROF. J. T. WILLARD.....Alumni Editor

LOCAL NOTES.

The cadets made a good showing on Decoration Day.

The carpenter-shop has made three hundred bug boxes this spring.

The students of botany are having weekly field trips in the study of ecology.

The zinc etching mentioned on page page 421, having failed to reach us in time, will appear in a future number.

A party of students enjoyed the beauties of a ride to Manhattan Beach Monday night, and report a pleasant time.

Prof. C. E. Goodell and family will leave next week for Indianapolis, Ind., to spend the summer with Mrs. Goodell's parents.

Assistant Kinsley's class in bacteriology is discussing the various theories of natural and artificial immunity from contagious diseases.

Professor Weida expects to go to Chicago immediately after the end of Commencement week, to spend a month or two at special scientific work.

President and Mrs. Nichols will give a reception to the Board, the Faculty and invited guests next Wednesday evening, in Domestic Science Hall.

Visitors at the College during Commencement week should not fail to see the exhibition of students' drawings in Professor Walters' drafting room.

The *Daily Drovers' Telegram*, of Kansas City, publishes a two-column article on the chinch-bug problem, in the form of an interview with Prof. E. A. Popenoe, of this College. The article is illustrated with a pen drawing of the professor.

Miss Williams is preparing for a public drill, with band music, of her classes in calisthenics, to be given on Commencement morning on the campus in front of the main building. The exhibition will close with a game of basket-ball.

The Riley county institute opened at the Central school building, Monday morning, with Prof. Geo. W. Kendrick, of Junction City, as conductor, R. J. Barnett, Miss Stella Kimball and Miss Ida Strack, instructors. The enrolment is 71—two more than last year.

On Tuesday or Wednesday evening of Commencement week the lady members of the Faculty will play a game of basket-ball on the College basket-ball field.

Doctor Weida is wearing a lapel button with the colors of Lehigh University, South Bethlehem. Pa. These have been sent out to all members of the alumni association.

The College pay-roll for May amounted to $5672.19. Of this amount the College officers received $3666.19, the students $880, the station officers $728.76, and the employes $397.24.

The number of alumni who have visited the college recently is too large to admit individual mention. Commencement week will bring many more, and all will find that the most beautiful spot in Kansas becomes more beautiful every year, and that though old friends may be few, a warm welcome will be given.

Bulletin No. 101 of the Experiment Station, entitled "Notes from the Plum Orchard," has been received from the State printer and is now being mailed from the College printing-office. The bulletin is the handsomest one issued this year. It contains eleven full-page zinc-etchings and fifteen full-page half-tones. Send for a copy.

Miss Gertrude Williams and eight members of the basket-ball team spent the day at Manhattan Beach last Monday. The boat rides, picnic dinner and supper, together with the moonlight ride home, made the picnic very enjoyable. The ladies were Loea DeArmond, Mabel Baxter, Anna Monroe, Inez Hjort, Minnie Hassebrook, Mary Davis, Hannah Rollins, and Clara Robbins.

The annual field-day exercises were held last Saturday afternoon in the city park, all classes participating except the sophomores. The exercises were of the usual character, consisting of running dashes, relays, hurdles, jumps, bicycle races, baseball and hammer throws, and pole vaults. The seniors made thirty-six points, the juniors thirty-two, and the freshmen twenty-three.

The first exhibition game of basket-ball between two young lady teams of the College was played on the campus Saturday evening, May 25, and was witnessed by a large crowd of students and town people. The game was a victory for the "purples," with a score of ten to two. Miss Frankie McCreary is captain of the "purples" and Miss Anna Summers of the "reds." Miss Williams officiated as umpire.

The Botanical Department has just finished its wheat crossing for the season. There are seventy-three pure and seventy-eight crossed varieties growing on the experimental plats. The department also has one hundred thirty-five strains of crossed and twenty of uncrossed corn growing for experiment this year. The extent to which variation has come in as the result of hybridization affords a great quantity of material from which to breed varieties especially adapted to Kansas local conditions.

Professor Roberts has recieved a number of trunks of the "cork-wood" tree (*Leitneria Floridana*) for the museum. These trees grow in the swamps along the southern stretches of the Mississippi river and its tributaries. Its wood is the lightest known, having a specific gravity less than that of cork.

Prof. A. S. Hitchcock, formerly of the Botanical Department of this College, and now an expert in the U. S. Department of Agriculture, has arrived from Washington, intending to stay until after Commencement. He looks healthy and vigorous, though somewhat browned up from a recent trip through the Southern States. While here he will make observations on a number of forage plants and visit, in company with Professor Roberts, the experimental grass station of the College in Harper county.

The Veterinary Department is testing its blackleg virus by inoculating calves. They have inoculated fifty-nine calves since March, and are sending out thousands of doses every week. They are also looking for young horses to test the effects of mouldy corn and are preparing to continue their hog-cholera experiments. Frequent outbreaks of glanders in different parts of the State are also claiming much time. Last week Doctor Butler visited El Dorado and Leavenworth, and this week he went to Mount Hope and Lincoln Center to investigate supposed contagious outbreaks.

The Printing Department is always a busy place, but during the past two weeks it has excelled itself. In addition to the regular editions of the *Students' Herald* and a double edition of the INDUSTRIALIST, it printed the grade sheets of the present term, 29,200 press bulletins on three different subjects, 4000 vaccine labels of four different kinds, 2000 Commencement invitations, 1500 eight page Commencement programs in two colors. It also mailed 23,000 Experiment Station bulletins and did a large amount of ticket printing and letter work. The rush has been so heavy that the presses were unable to keep up with the requirements. The students' pay-roll for May in this department was $83.90.

President Nichols and Regent McDowell went to Hays City on Tuesday, May 28, where they conferred with President Taylor and Regents Dodge and Larribe of the State Normal on Hays reservation business. The main purpose of the conference was to settle the division of an undivided half-section on which the buildings are located. The K. S. A. C. Regents, recognizing that the State Normal would require the better preserved buildings, gave them first choice in the matter, and so the Normalites got eleven of the best buildings now standing. However, in the buildings left to the College are included a number of supply houses, which will make excellent stock sheds and stables. The College Regents were particularly generous in the matter, for upon close inspection the majority of the buildings were found to be located on K. S. A. C. territory. They also set on foot a movement for a redivision of the reservation.

The College baseball team played several games with other college teams during the past ten days. On Thursday, May 23, they crossed bats with Highland Park College, Des Moines, Iowa, at Manhattan; on Friday they played the nine from Haskell Indian school, at Lawrence; on Saturday they measured themselves with the State University nine, at Lawrence; on Monday they played with Washburn College, at Topeka; on Tuesday they met the team of St. Mary's College, and after they got home they entered the Manhattan Athletic Park and beat the Manhattan town team. In some of these games they came out victorious and in some they were beaten—but it matters not which, as the real purpose of athletics is not "to beat the other fellow."

One of the most enjoyable events of the season was the domestic science symposium held at D. S. Hall, the afternoon of May 29, and given to the ladies of the D. S. and T. P. M. clubs, the Regents, Faculty and the young ladies of the Domestic Science class, by Professor Stoner and Miss Knostman. Nature gave a perfect sky, the reception-rooms were tastefully decorated, and this, together with the program prepared and the amiability of the guests, made a pleasant afternoon. Miss Huntress opened the program with a well-rendered piano solo. Miss Stoner then gave a cordial welcome to the guests, to which Miss Harper pleasantly responded. Mrs. Foster's paper on "Our College Girls" was spicy and bright. Mrs. Foster is the oldest member of the Domestic Science club and her paper, which was read in a cheery manner, was well worth hearing. Miss Pincomb's paper on "The Value of Domestic Science Training" proved that the reader fully understood her subject. This was followed with a solo by Mrs. D. H. Otis. Miss Agnew's paper, entitled "Books Helpful to the Housekeeper," contained many valuable suggestions helpful to the housekeeper. Mrs. Brock, of the T. P. M. club, followed with a well-written paper on the "Books One Should Have in the Home." Miss Knostman's demonstration lecture on "Fruit Drinks and Ices" was presented in a practical and scholarly manner, showing her ability in domestic science lines. She prepared and served fruit punch, presenting a foundation recipe demonstrating how it could be varied in the preparation of the following kinds of ices: Water ice, granites, sherbets, frappes, frozen fruits, etc., explaining the food value of fruits, ways of serving and general care and use of utensils and substitutes. In this, the practical work, Miss Knostman was assisted by Miss Agnew, of the D. S. Department. Professor Stoner was assisted in receiving by Miss Pritner, of the D. S. Department, and the young ladies of the domestic science class. After a short intermission, Miss Huntress again entertained the company with music. Professor Stoner then introduced Mrs. Humphery, of Junction City, ex-president of K. S. S. F., to the guests and invited her to address them. Mrs. Humphery responded in her usual bright and interesting way, complimenting the department on its success and its extensive work and encouraged the club ladies in the effort for higher home standards and broader education.

PROGRAM FOR COMMENCEMENT WEEK.

Friday, June 7.—Society Entertainment, College Chapel, at 8 P. M.

Sunday, June 9.—Baccalaureate Sermon, in College Chapel, at 4 P. M., by Rev. R. J. Phipps, D. D., Pastor First Presbyterian Church, Hebron, Neb.

Tuesday, June 11.—Examinations, from 9 A. M. to 3:35 P. M.

Wednesday, June 12.—Examinations, from 9 A. M. to 12:20 P. M. President's Reception to Invited Guests, 8 to 10:30 P. M.

Thursday, June 13, Commencement Day.—Calisthenics Drill, 8:30 A. M., on East Campus. Annual Address, at 10 A. M., by Pres. A. R. Taylor, Ph. D., Emporia, Kan. Presentation of Diplomas. Cadet Band Concert, on East Campus, at 2 P. M. Military Drill, at 2:45 P. M. Annual Business Meeting Alumni Association, at 4:30 P. M., College Chapel.

ALUMNI AND FORMER STUDENTS.

Dr. Geo. W. Smith left for Omaha, Neb., Monday, where he will look up a permanent location.—*Mercury.*

Ella Weeks, second-year in 1897, was graduated from the School of Arts of the University of Kansas, last week.

The marriage of Dr. Ernest Williams, of Kansas City, Mo., to Miss Lillian St. John, of Manhattan, will take place to-morrow morning at nine o'clock at the home of the bride. The young couple expect to go to the Pan-American exposition.—*Mercury, June 5.*

R W. Clothier, '97, has been elected to the chair of Chemistry and Agriculture in the Third District Normal School of Missouri, located at Cape Girardeau. His term of service begins September 1. With his experience on a farm in early life, his training and work here and on farmers' institute tours, he is excellently well fitted for the position to which he has been elected.

Harry Hubbard [second-year student 1900], of Blue Rapids, received a position with the Armour Packing Company about four months ago. His first position was at El Dorado, Kan.; from there he was transferred to Independence about a month ago, where he gave such evidence of special qualifications for the business that he was sent this week to San Francisco, where he has charge of the egg and poultry department of the entire Pacific coast for the Armour company.—*State Journal.*

Cards are out announcing the marriage of J. Wilson Evans, M. D., K. S. A. C. '94, K. S. N. '97, to Miss Pearl E. Turner, K. S. N. '00, of Emporia, Kan. The wedding will take place Tuesday, June 11, at 9 o'clock A. M., at the home of the bride's parents, 832 Rural street, Emporia, Kan., and the couple will leave at 11:25, reaching Manhattan Tuesday evening. Mr. and Mrs. G. W. Evans will give a formal reception from 9 to 10 o'clock that evening for invited guests. Doctor Evans and wife will remain in Manhattan for Commencement, leaving Friday for Blue Rapids, where they will be at home to friends after July 1.

TERMS AND VACATIONS.

Fall Term, 1901, Thirteen Weeks.

WEDNESDAY, SEPTEMBER 18.—Examination for admission, at 9 A.M.
THURSDAY, SEPTEMBER 19.—College year begins.
TUESDAY, SEPTEMBER 24.—Short course in domestic science begins.
SATURDAY, NOVEMBER 2.—Examination.
THURSDAY AND FRIDAY, DECEMBER 19, 20.—Examination at close of term.

Winter Term, 1902, Twelve Weeks.

MONDAY, JANUARY 6.—Examination for admission, at 9 A.M.
TUESDAY, JANUARY 7.—Winter term begins.
TUESDAY, JANUARY 7.—Short courses in agriculture, horticulture and dairying begin.
SATURDAY, FEBRUARY 15.—Examination.
THURSDAY AND FRIDAY, MARCH 27, 28.—Examination at close of term.

Spring Term, 1902, Eleven Weeks.

MONDAY, MARCH 31.—Examination for admission, at 9 A.M.
TUESDAY, APRIL 1.—Spring term begins.
SATURDAY, MAY 10.—Examination.
TUESDAY AND WEDNESDAY, JUNE 17, 18.—Examination at close of year.
JUNE 15 TO 19.—Exercises of commencement week.
THURSDAY, JUNE 19, AT 10 A.M.—Commencement.
JUNE 20 TO SEPTEMBER 17.—Summer vacation.

Fall Term, 1902.

WEDNESDAY, SEPTEMBER 17.—Examination for admission, at 9 A.M.
THURSDAY, SEPTEMBER 18.—College year begins.

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THE INDUSTRIALIST

ISSUED WEEKLY BY

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AGRICULTURAL COLLEGE

☆ ☆ ☆

Editor-in-Chief, - - *Pres. E. R. Nichols*
Local Editor, - - *Prof. J. D. Walters*
Alumni and Former Students, *Prof. J. T. Willard*

☆ ☆ ☆

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KANSAS STATE AGRICULTURAL COLLEGE

This Institution is supported by the General Government and by the State of Kansas, and is designed, by its instruction, to promote the liberal and practical education of the industrial classes in the several pursuits of life.

College Classes are open to both sexes. Tuition is free in all departments. There is no charge for laboratory supplies. Room and board can be had at very reasonable rates. The yearly expenses, exclusive of clothes and traveling expenses, are between $100 and $200. All College laboratories, shops and class rooms are well supplied with needful apparatus and appliances. A preparatory department is maintained for persons over eighteen who cannot pass the common-school branches.

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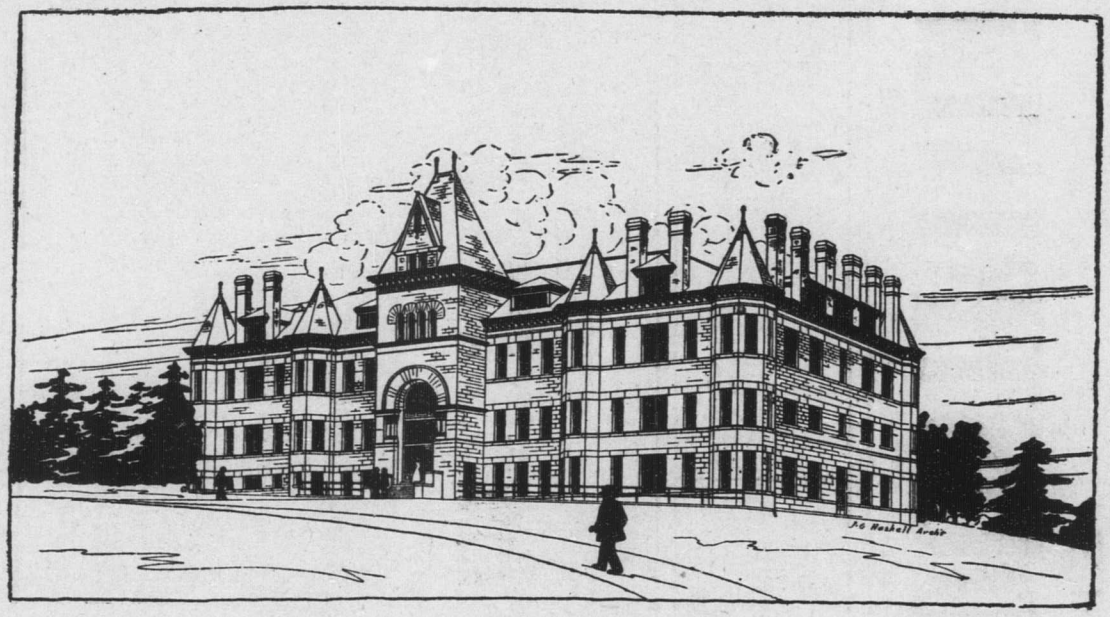

PHYSICAL SCIENCE BUILDING.

THE INDUSTRIALIST.

VOL. 27. MANHATTAN, KAN., JUNE 15, 1901. NO. 35

KANSAS STATE AGRICULTURAL COLLEGE COMMENCEMENT, 1901.

THE closing week of the school year was a glorious time for the Agricultural College. The sky was perfect, the campus lovely, the exercises a grand success, and the patrons and friends of the institution, who had come from all parts of the State to attend the various examinations, lectures, concerts, and exercises, were present in vast numbers and throngs. It is estimated that, notwithstanding the poor condition of the country roads which prevented many farmers from driving to Manhattan, from three thousand to five thousand people were present on the campus on Commencement day.

It is not possible in a single number of the INDUSTRIALIST to speak at length of the details of the different exercises and intellectual feasts that had been prepared for our friends and visitors, or to give copious extracts from the several addresses that were given by noted public lecturers. All that we can do is to print a few rapidly made notes and excerpts, and to cull a few sentences from the Manhattan papers, which have this week devoted a liberal part of their news columns to reports of this, the annual red-letter week of the queen of western college towns.

The exercises of Commencement opened Friday evening, when Lou R. Beauchamp, of Hamilton, Ohio, delivered an address before a large audience in the College chapel. "The Laughing Philosopher," as Mr. Beauchamp styled himself, had been secured by the four literary societies of the College, and their efforts in securing a first-class entertainment for the members and their friends was highly appreciated.

On Saturday evening there was a game of basket-ball on the campus in front of the Main building. A picked team from the reds and purples, the two teams of the College, defeated the young lady members of the Faculty by a score of 12 to 1. The game was full of interest, excitement and numberless pretty plays, and was witnessed by a large number of students and

teachers. Another game of basket-ball, equally exciting, was played on the campus Tuesday evening by the lady members of the Faculty and the senior girls. It resulted in a complete victory for the seniors, the score standing 28 to 2. Basket-ball is evidently the coming out-door game for young women, and Miss Williams, the efficient teacher of calisthenics, deserves much credit for cultivating a love for this exhilerating and healthful sport.

Baccalaureate Sermon.—The Baccalaureate sermon was given in the College chapel at four o'clock Sunday afternoon by Rev. R. J. Phipps, formerly the pastor of the Presbyterian church of Manhattan, but now of Hebron, Neb. The stage was simply but artistically decorated in potted plants and ferns. On the rostrum with President Nichols were seated the Reverends Phipps, of Hebron, Neb., and Hood, Miller, Rosenstein and Rickman, of this city. Promptly at four o'clock the orchestra opened the exercises with an appropriate selection, during the rendition of which the seniors, smiling and some sixty strong and all in fete day array, marched to the seats reserved for them. Rev. Dr. Hood gave the invocation, while the lesson of the afternoon was read by Reverend Miller. The audience next sang, "Cast thy Bread upon the Waters."

Reverend Phipps' sermon was as able as any ever delivered here to a graduating class. There was a keynote of optimism, of personal sympathy, and of direct address to the class that was very pleasing. His text was from Ecclesiastes 7-10. "Say not thou what is the cause that the former days were better than these, for thou dost not enquire wisely concerning this." Briefly, Mr. Phipps left these thoughts to guide the young people of the class of 1901. "Each age has its own special nobleness, its own special use. Led on by the spirit of God, the world of to-day is better than the world of yesterday. Crime abounds, but the genius of man has made the world smaller and we know of crimes in an hour to-day where before it took weeks to gain the news. Calculate, weigh, think and reason and you will find that better times than ours were before non-existant. Know then, that never before has the world been so good a place to live in, to work in, to win prizes in. Intelligence is diffused with the activity of instantaneous lightning. The world to-day is one vast whispering galley. The graduates of 1901 should be glad to live in a century

that looks out upon such infinite promise and possibilities. Practical ethics, social purity, moral standards, reduction in crime and the rise and spread of education make the world better than ever before for a life of usefulness, for Christian manhood and womanhood. The last century has left for you a vast industrial, social, spiritual and moral wealth. To you, graduates of the class of 1901, I tender congratulations as the first class of a century which is teeming with bright prospects for all of you. You are soon to step forth into a new and untried world, a realm that will test all your ability and tax all your resources as you attempt to keep step with its wonderful achievements. Twentieth century opportunities cannot be played with. Make a profound and original study of whatever profession you may choose. Do this and you will be prepared to render your best service to humanity. Forget self. Those who forget themselves, and serve without striving for self, gain in the end the highest awards of God and man. Learn to look constantly on the bright side of life. Go out into the world hand in hand with Jesus Christ, the same yesterday, to-day, and forever." The audience followed the sermon by singing, "Oh, Give Thanks." Reverend Rickman pronounced the benediction. The entire services were as impressive and the audience as large as any baccalaureate services ever held at the College.

The Ball Game.—The ball game Monday afternoon between the town and the College was a victory for the latter by a score of 9 to 8, and gave them two of the games of the three played. Both teams put up good ball and the contest was an interesting exhibition, witnessed by scores of enthusiastic rooters on both sides. The College nine has been this year the star nine of the institution and the memory of their swift grounders, miraculous catches and all-around hot ball will live and long be cherished with pride and great rejoicing. The nine has been composed of regular College students and as such has had and merited the support of Faculty and students. The season has been a successful one to them, both from an athletic and financial standpoint.

The Senior Reception.—The members of the graduating class were most happily entertained on Monday evening by President and Mrs. Nichols. Their charming residence at the corner of Poyntz and Juliette avenues was rendolent with the fragrance of beautiful flowers and the whole affair was characterized by the

cordial hospitality for which President and Mrs. Nichols are well known. A short but delightful program was followed by various guessing contests of most entertaining natures. Dainty refreshments were served during the evening.

The Reception.—On Wednesday evening President and Mrs. Nichols entertained the Regents, the Faculty and a number of invited guests in a very delightful manner in Domestic Science Hall. The rooms were tastefully decorated and presented a decidedly attractive appearance. A short but well-rendered program added to the entertainment. Professor and Mrs. Metcalf, Mesdames Otis and Goodell and Misses Stoner and Huntress partaking. Sherbet, ice-cream and wafers were served during the evening. Some eighty guests were present and among these were many old friends of the College, such as Ex-Regent E. B. Purcell, of Manhattan; Rep. F. M. Emmons, of Riley county; Ex-Professor A. S. Hitchcock, of the Agricultural College; B. Anderson, son of Ex-President J. A. Anderson, of the Agricultural College; Dr. C. F. Little, of Manhattan; Rev. R. J. Phipps, of Hebron, Neb.; Ex-President A. R. Taylor, of the State Normal School; etc. Many of these guests were accompanied by members of their families.

Commencement Day.—Commencement day dawned clear and bright. The rain of Wednesday morning had cooled and cleared the atmosphere and refreshed the grass and leaves of the campus. The graveled roads and walks were clean and dustless, and the air was drowsy with the fragrance of blooming bushes. The visitors came early and when the squads of girls of the Calistenics' classes appeared in front of the Main building at 8:30 to give a public drill the campus was already peopled with a large and well-dressed crowd of expectant visitors.

The drill was a pretty one, many of the features were new and all were skilfully and gracefully done. The trimly clad, bare-headed young women, healthy and blooming, were indeed a pleasant picture. Miss Williams has trained her young women well, and their supple and vigorous bodies testify to strong and vigorous mentality. A good exhibition of basket-ball followed the drill. The exercises of the class were accompanied by orchestra music furnished by the Music Department.

The exercises of the morning opened in the College chapel at ten o'clock. The stage was tastefully decorated in palms and cut

flowers and in the class colors, royal purple and white. Regents, Faculty and seniors occupied places on the platform. Following is the morning's program:

Overture.....College Orchestra
Piano, Eight Hands.....Misses Mudge and Marty and the Misses Hofer
"Grand Fantasia."
Selection.....College Orchestra
"Wedding of the Winds."
Prayer.
Overture.....College Orchestra
"Morning, Noon and Night."
Annual Address.....Pres. A. R. Taylor
State Normal School, Emporia, Kan.
March and Two Step.....College Orchestra
"Crack o' the Whip."
Conferring Degrees.
Benediction.

The Annual Address.—The subject of Doctor Taylor's address was "The Measure of a Man," and he discussed it in a highly interesting and practical way. Pope has said that the mind is the measure of man, and yet people to-day base their judgment largely on physical attributes. The first two or three times that people fall in love they are influenced by physical beauty. Paris was the ideal of manly beauty, yet Homer shows us in Hector's character that there is a higher beauty than that of the body. Greatness is a matter of superior excellence in some one respect rather than of many sidedness. It is a relative term, however. Socrates was far above the plane of his age, but he would be no match for a high-school senior now. "The man who is equal to a great occasion and meets it is a great man." In speaking of the money standard Doctor Taylor remarked that "a man with a good pair of lungs and a reasonably healthy liver should be expected to provide liberally for his family; but that he should be expected to endow each child with a large estate is a doctrine fruitful with untold private and public misery. Neither is a man to be measured by popularity. The fickleness of the mob is proverbial. The greatest men are not popular. It is easy to be popular, but the measure that a business man applies to an applicant for a position is a very different one—one that should make every young man solicitous for a liberal education and a spotless character. People are constantly measuring each other, and often making mistakes. The shape of the head, the conversation, the general bearing, are

of less importance than character and habits. "There is no higher responsibility than that of manhood." In conclusion Doctor Taylor spoke a few earnest words especially to the class. He said in part: "I commend to you, young ladies and gentlemen of this graduating class, this higher type of manhood and womanhood. You are not strangers to men and women of this gentler mould. They have filled our literature with the fragrance of spring time and of the autumnal harvests; they have hallowed our liberties by the sacrifice of their hearts' best blood; they have dignified human labor by their unswerving fidelity and integrity; have builded iron bridges, stately palaces and earth encircling cables; have wrought into our social temple all of the institutions which make it so stable, so beneficent, so glorious. May I not express the hope that this acquaintance has already kindled within you an insatiable desire to round out lives, now so auspiciously begun, with achievements worthy your race, the nation, and the institution which sends you forth with such bright anticipations to-day? Let no obstacles defeat you, no limitations debar you, no discouragements deter you."

The lecture was attentively listened to and well received. It may be said that Doctor Taylor is at present the most widely known and most conspicuous educator of Kansas, though it must be added also that he has recently resigned his position as executive of the State Normal School to become the president of Milliken University, at Decatur, Ill. He has been at the head of the Kansas State Normal School since 1882, and has made for himself a national reputation as a modern educator of high rank. He is the author of several works on educational subjects.

Conferring of Degrees.—The class of '01 consisted of fifty-eight members—twenty-nine young men and an equal number of young women. Upon a sign by President Nichols all arose to receive their "B. S." diplomas. It was an inspiring moment to see these students initiated in the first degree of scholastic brotherhood. They had been students at the Agricultural College for four or five years and had formed a model class. All had worked faithfully at their self-improvement and had succeeded in a fair degree. With the diploma conferred by the Board of Regents they stepped out of the ranks of their fellow students and into active citizenship. The Faculty and the Board are proud of the class, because they know that these young men and women will

make model citizens. A large number of them will go back to the farm and become agricultural missionaries in their old neighborhoods. Some will select the workshop; a few will probably go into commercial enterprises, and still others may become professionalists—not lawyers or preachers, but editors of agricultural papers, government experts, teachers of agricultural and domestic science, etc. The young women will make excellent, practical housekeepers. But whatever these fifty-eight young Kansans may undertake, they will work intelligently, bravely and honestly —they will be successful. Their teachers are not afraid for the future of a single one of them.

The following is a list of the class, together with the their theses subjects:

Names.	*Theses subjects.*
Del Mar Akin	Some Facts Concerning Socialism.
Cyrus Norton Allison	Rubus Fruits in Kansas.
Loua Adelle Blachly	Horace Mann, America's Pioneer Educator.
Harry S. Bourne	In-and-In Breeding.
Charles Jay Burson	The Diplomatic Service of the United States.
Howard Frank Butterfield	A Historical Review of the Physical Geography of the United States.
Edwin C. Cook	Wireless Telegraphy.
Ina Foote Cowles	Cookery of Vegetables.
Trena Dahl	The Number and Significance of Stomata in Sun and Shade Plants.
Fanny R. E. Dale	Characteristics of Some Great Orators.
Herman August Dieball	The Reorganization Period of Education in the United States.
Edgar Willis Doane	Culture Media with Bouillon as a Base, Compared with Media having a Base of Inorganic Chemical Salts.
Otto H. Elling	Production of Baby Beef.
Valentine Meacham Emmert	Hay Making.
Rainey Faris	Testing Materials.
Harry Haines Fay	The Duroc-Jersy Hog.
Frederick F. Fockele	Mozart's Music.
Louise Gerteis	Nature and Value of the Influence of German Literature upon English Literature since the Time of Coleridge.
Maude Hart	The Relation of Bacteria to Diseases.
Fred Willis Haselwood	Triumphs and Promises of Electro-Chemistry.
Minnie Howell	Healthful Homes.
Edith Huntress	The Model Kitchen.
Helen Knostman	The Kitchen in Art and in Science.
Daniel M. Ladd	Ecological Notes on the Woody Plants of Manhattan and Vicinity.
Erma Elizabeth Lock	Domestic Science in the Public Schools.
Harvey McCaslin	The Louisana Purchase.
Madge Ruth McKeen	The Possibility of Bacterial Infection along Two Miles of Country Road.

John Alexander McKenzie.....	Tillage.
George Martinson.....	A Study of the Federalist Papers.
Walter Eldridge Mathewson...	The Typhoid Bacillus.
Emma Maude Miller.....	Gypsum in Kansas.
Margaret Jane Minis.....	Wordsworth's Mission to His Age.
Clarence William Morgan.....	The Electric Arc.
Eugene Lawrence Morgan.....	Geology of Phillips County.
Ruth Atwill Mudge.....	The English Drama Before Shakespeare.
Jessie M. Mustard.....	The Attitude of the National Government toward the Education of the Indian.
John H. Oesterhaus	The Conduct of War.
Carrie Bell Oneel.....	Starch.
Helena Maude Pincomb	Fruit and Nuts as Foods.
Bryant Poole.....	Preparation of Vaccines and Theory of Preventive Inoculations.
Leroy Rigg.....	Origin of Soils.
William Stephens Sargent	The Modern Printing-office.
Maud Sauble.....	A Modern Lawn.
Charles A. Scott.....	Humus for Kansas.
Annie Louisa Smith.....	Some Important Factors in School Discipline.
Sarah Adelaide Strite.....	Higher Education of Women in the United States.
Anna Odette Summers.....	The Origin of the Drama and Its Influence.
Lucy A. Sweet.....	A Course of Study in Domestic Science.
Perrin K. Symns	Alfalfa in Eastern Kansas.
Estella Mae Tharp.....	Dyes and Dyeing.
Helen C. True	Kansas Coals.
Harry Castle Turner	Bismarck and German Unity.
Florence Helen Vail	The Poetry of Keats.
Mary Caroline Wagner.....	Evolution of the Thermometer.
Eleanor Mary White.....	Milk, Butter, and Cheese.
Katharena Winter.....	The Cooking Laboratories of Different Colleges.
Lucie J. Wyatt.....	Women in the Agricultural Colleges.
Henry T. York	Wireless Telegraphy.

Postgraduates.—When all the graduates had received their "sheepskins," the postgraduates presented themselves to receive their M. S. degree.

The number of students in postgraduate work has fluctuated much during the past dozen years. In 1887-88 there were but two postgraduate students. Three years ago there were fifty-seven, last year twenty-seven, and this year forty. Of this number nine were candidates for the master's degree, eighteen are in courses leading to the master's degree, and thirteen are doing advanced work not leading to a degree. The following following are the candidates who received the degree, together with their theses subjects:

Names.	*Theses subjects.*
Flora (Day) Barnett, B. S. '95.....	A Year's Table Expenses for Two.
Albert Dickens, B. S. '93.	Vegetable Growing at the Experiment Station.
Marian Elizabeth Jones, B. S. '96...	The Ideal Dietary.
Albert Thomas Kinsley, B. S. '99....	Tetanus Bacillus.
Mary Eliza (Lyman) Otis, B. S. '94..	Balanced Dietaries for the Country Table.
Jesse Baker Norton, B. S. '97.....	Studies in Hemiptera.
Josephine Hannah Wilder, B. S. '98.	Bacteriology for the House Mother.
Phillip Fox, B. S. '97.....	Determination of the Horizontal Component of the Earth's Magnetic Force.
Harry N. Whitford, B. S. '90.....	The Genetic Development of the Forests of Northern Michigan; a Study in Physiographic Ecology.

Band Concert and Cadet Drill.—The cadet band concert on the east campus at 2 o'clock called out a large number of admirers of military music. The boys' selections were delightfully chosen and well rendered. The cadet band concert added much to the day's program. The four companies of the College battalion gave their annual drill, followed by a sham battle on the campus commencing at three o'clock. The throng of visitors in front of the Main building was immense and their interest in the movements was evident from beginning to end. The boys were decidedly soldierly in bearing and appearance and one felt, as they went through their various manouvers and the battle following, that actual warfare would find them equally active in defense of their country's colors. The following are this year's battalion officers: Charles Eastman, major and commandant of cadets; staff: J. F. Ross, first lieutenant and adjutant; P. H. Ross, first lieutenant and quartermaster; H A. Avery, second lieutenant and signal officer; E. N. Rodell, sergeant-major; R. W. DeArmond, color sergeant; J. A. Correll, principal musician.

Alumni Meeting.—At five o'clock the alumni met in annual session in the chapel. The constitution provides for a banquet every three years, but this is the second one of the off years. A business session is held every Commencement. A large number of alumni were present and the class of 1901 was "sworn in" and taken into the heart and home of the association. The question of the new constitution was the important business of the session.

Commencement Exhibits.—Several of the departments of instruction had prepared exhibits of student work. The Department of Industrial Art had the walls of Professor Walters' large

drafting room covered with several hundred carefully-executed drawings from the different classes of his department, and the room was crowded with interested visitors every day. The exhibit this year was especially fine in regard to the work in graphics, *i. e.*, projection drawing, shades and shadows, and descriptive geometry. Another part of the collection represented the senior class, by the senior class. It contained about seventy-five drawings of the members of the class who had in turn posed for the rest of the class for thirty-minute pencil sketches. The drawings were life-like and spirited. The Mechanical Department had exhibited samples of their woodwork and ironwork that made a very favorable impression upon all the hundreds of visitors who inspected them. The chief attraction for the practical farmers was the barn and the feed lots, with their many fine specimens of thoroughbred stock. The herd of high-grade animals is growing rapidly at present and within a very short time the Agricultural College barn will become the center of interest of the stock-breeders of the West.

The Regents were in session from Tuesday afternoon to Saturday afternoon of Commencement week and transacted a large amount of business. The contract for the chemistry-physics building was not let because the bids submitted exceeded the amount available. Some changes in the Faculty were passed upon. The anomoly of two heads for the Chemical Department was ended by making J. T. Willard professor of chemistry and George F. Weida assistant. A change was made in Professor Popenoe's work by assigning him to entomology and zoölogy. Albert Dickens was left in charge of horticulture for the time being. Miss Berry, of Ottawa, was elected to the chair of English during the year for which Professor Lockwood was granted leave of absence. Mrs. John H. Calvin, of Topeka, was selected librarian to succeed Miss Josephine Berry. Chairs not yet filled are mechanical engineering, horticulture, and oratory. Another meeting will be held on July 8, at which time the unfinished business of this session will be completed and the contract for the physical science building awarded.

We promised in the last number to print a perspective of the new physical science building as soon as the cut could be obtained of the architect. The picture will be found in this issue. For a description of the building read the Commencement number of the INDUSTRIALIST.

THE INDUSTRIALIST.

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PRES. E. R. NICHOLS.....Editor-in-Chief
PROF. J. D. WALTERS.....Local Editor
PROF. J. T. WILLARD.....Alumni Editor

LOCAL NOTES.

Prof. D. H. Otis went to Topeka Tuesday morning, June 18, to attend the wedding of his sister.

A recent number of the *Kansas City Star* contains a fairly correct zinc etching of Prof. J. D. Walters.

Mr. F. S. Johnson writes from Deer Creek, Okla., where he is employed by the Parker Creamery Company.

The Farm Department has just completed Press Bulletin No. 90, on "Dried Blood as a Tonic for Young Calves."

Mr. A. B. Dille, Marshall, Mo., writes to this College for a good butter maker, having business ability in handling cream.

The Blue Valley Creamery Co., Marysville, Kan., writes for an expert butter maker to place in their factory at St. Joseph, Mo.

Professor Walters is receiving congratulations to his silver jubilee as a teacher at this College from every state and county where former pupils are located.

Secretary F. D. Coburn, of the State Board of Agriculture, and Prof. H. M. Cottrell started last Wednesday on a trip to buy pure-bred stock for the Farm Department.

Young men and young women who contemplate going to College next year should write for a copy of our catalogue. Address: Agricultural College, Manhattan, Kan.

The Parker Creamery Company, Hutchinson, Kan., writes as follows: "We always have work for the boys who are educated at the Agricultural College at Manhattan."

Jesse M. Jones, of the class of '02, left the Farm Department on Monday after Commencement to take a position under the Parker Creamery Company, at Hutchinson.

During the past school year the Students' Co-operative Association conducted business amounting to $9863.84. Of this sum the dining-hall took in $7344.71 and the bookstore $2519.13.

Superintendent Rickman, of the Printing Department, went to Kansas City last Wednesday to visit the printers' supply houses. He expects to increase the inventory of his department during the summer.

The Farm Department has just harvested their crop of field peas and oats and will immediately list the ground to plant to cow peas. The object is to secure two leguminous crops in one season from the same land.

Dr. A. Emch and family, of Boulder, Colo., are visiting for a few days with Professor Walters. The Doctor will return to Boulder on July 1, to teach in the summer school of Colorado University, where he is associate professor of mathematics.

Herman Arndt, of Templin, Wabaunsee county, has just donated to the Farm Department a Poland-China sow which was pronounced by many experts who saw the animal on Commencement day to be one of the best representatives of the breed which they had ever seen.

The Continental Creamery Company writes as follows: "We are in need of a couple of good men, in our factory at Topeka, of similar caliber as Mr. A. E. Blair (class of '99). Have you any young men at school now that you could recommend to us? We want one of these men to make tests and analyses and to carry on general experimental work all the time. He should understand how to operate the Babcock tester as well as the Mann's acid test, and should also know the analysis of butter, milk, and those articles that enter into our work here. We would be willing to start such a man at $50 per month, and if he proves to be of good use to us we will pay him more."

The *Western Creamery*, published in San Francisco, devotes several columns to a timely discussion of agricultural education at the State Agricultural College of California, and refers repeatedly to the methods, enthusiasm and attendance at the Kansas State Agricultural College. It seems that at the recent commencement of their institution, but two graduates appeared on the rostrum to receive the degree of in B. S. the agricultural course, and that one was a young woman from Kansas—a former graduate of this College, Julia R. Pierce, '90. We excerpt a few sentences from the articles to show their drift: "When Miss Pierce appeared on the platform yesterday to receive her diploma she was subjected to good-natured "joshing" at the hands of the other students, but bore up with fortitude that called forth the admiration of Secretaries Long and Wilson, both of whom congratulated her. The latter offered her the opportunity to go to Washington. The example of Kansas, which graduated the young woman with many others on the platform, and a thousand or more agricultural students to protect her, ought to be followed. Five hundred acres of land can easily be secured in the interior upon which to maintain a college and give ample room for live-stock and farm operations. One of those counties which grow wheat in tracts of immense proportions can be induced to donate sufficient land. There is no reason why the attendance in Kansas of over thirteen hundred students at the State Agricultural College should not be equaled in California. The lessening area of wheat culture and growth of the live-stock interests of the state is demanding educational help and the Agricultural force at Berkeley should concentrate on the interior. Coast farmers have had a long experience and do not rely on the professors for aid in solving their problems, for most of them could give better instruction than the college, on subjects in their particular line."

ALUMNI AND FORMER STUDENTS.

J. W. Berry, '83, is one of the bidders for the construction of the new chemistry-physics building.

Cards are out announcing the marriage of Walter T. Swingle, '90, to Mademoiselle Lucie Romstaedt, of Washington, D. C.

Ivy F. Harner, '93, teacher of domestic science, Louisiana Industrial Institute, will spend her summer vacation at the College studying chemistry.

Edward Shellenbaum, '97, was married June 12, 1901, to Miss Anna Heller, of Fancy Creek. Mr. Shellenbaum is now assistant postmaster at Randolph.

Prof. Charles L. Marlatt ['84], formerly of Manhattan, now first assistant entomologist in the national department of agriculture, is in China on work connected with this department.—*Mail and Breeze.*

Harry W. Johnston, '99, is now night operator for the Rock Island Railway Company, at Enid, Okla. Mr. Johnston's energy and capacity will doubtless insure him success in the important field of railroad service.

Marie Haulenbeck, '97, after a long struggle in which everything possible was done for her. died of consumption, June 14, 1901, at Newton, Kan. Her attractive disposition won her many friends, who share with her family the burden of grief.

C. L. Marlatt, '84, first assistant entomologist, U. S. Department of Agriculture, is the author of Farmers' Bulletin No. 132, on "The Principal Insect Enemies of Growing Wheat." The article on the Hessian fly is especially timely for this State.

Ed. H. Webster, '96, has resigned his position as assistant in dairying at the Iowa State College to accept one with the Continental Creamery Co. Mr. Webster will be in charge of the butter making at Topeka, where thirty thousand pounds per day are made.

On account of the difficulty of getting sufficient consideration with the noise and disturbance of Commencement day, the Alumni Association deferred action on the proposed new constitution, with the expectation of having a better opportunity for its proper consideration next year.

Henrietta Willard-Calvin, '86, was elected librarian of this institution at the last meeting of the Board. She has been employed in the Topeka city library for the last year and a half, and her friends have no doubt that she will administer the larger duties to which she comes with fidelity and ability.

Last year the alumni expressed the wish that a room for them might be set aside in the new chemistry-physics building. While it has not been possible to do this, there will be several rooms any

one of which may be used as headquarters, and the central and commanding position which the building will occupy will make it an ideal one for a meeting place.

There is some talk among the alumni of returning to the practice of holding formal reunions annually instead of triennially. There can be no doubt that such reunions could be made successful. During Commencement week at least 110 graduates were noticed on the grounds, doubtless there were others, and with those resident in the vicinity who did not come up would have made a lrge company.

The business meetings of the Alumni Association on the afternoon of Commencement day have never been a success because of the lateness of the hour and the noise in the halls. At the last meeting a committee was appointed to endeavor to secure Wednesday afternoon and evening preceding Commencement day for the exclusive use of the alumni. It is believed that in this way a large attendance at reunions will be secured, and an abundance of time for the proper consideration of business. Under the present plan there is no opportunity for social greetings except at the triennial reunion.

Geo. C. Wheeler, '95, writes a very interesting letter to the editor containing a number of news items. Mr. Wheeler is still a sleeping-car conductor on the N. Y., N. H. & H. R. R., and is putting in a good deal of his leisure time studying agriculture. His address at present is 361 Madison Ave., New York City. The following is extracted from his letter: "I saw some months ago a news item in the INDUSTRIALIST giving Mr. Payne and wife, of Colorado, the credit of having the first pair of twins among the alumni. The class of '95 will lay claim to that honor, along with their other matrimonial triumphs. I enclose you under separate cover a picture of Burton and Byron Ames, which I took with a small hand camera in Bedford Park, Brooklyn, a few weeks ago. The twins were born in October, 1899. The parents are Frank W. Ames, '94, and Ethel (Patten) Ames, '95. Mr. Ames is with the National Steel Co., of New York, the offices of which, however, are to be removed to Youngstown, Ohio, very soon, and of course all clerks and employes will have to move with them. The members of the classes of '94 and '95 who are present at the alumni reunion next week may be interested in seeing the picture. Lorena Helder, '94, who has been taking a musical course here in Boston, expects to leave for the West some time this month, making a short stop in Chicago. Miss Minnie Pincomb, '96, will get her diploma from Teachers' College, New York City, after a year's hard work, the regular graduate course being two years. I have received a card of admission and expect to be present and see her carry off the honor.